

SCIENCE AND TECHNOLOGY COMMITTEE

First Report

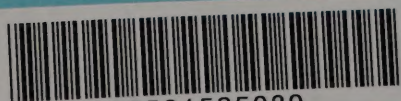
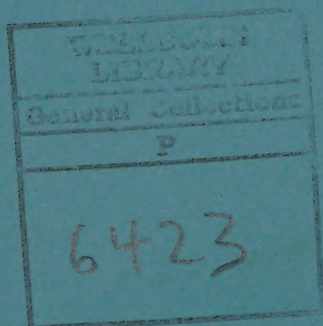
**THE IMPLICATIONS OF THE DEARING
REPORT FOR THE STRUCTURE AND
FUNDING OF UNIVERSITY RESEARCH**

Volume I

Report and Proceedings of the Committee

*Ordered by The House of Commons to be printed
25th March 1998*

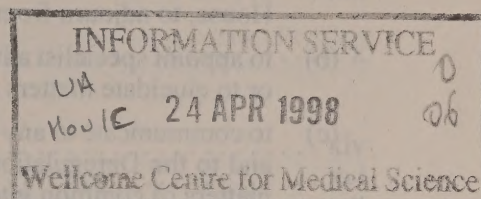
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Research - Finance 12523
Universities and colleges

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The Science and Technology Committee is appointed under Standing Order No 152 to examine the expenditure, administration and policy of the Office of Science and Technology and associated public bodies.

The Committee consists of 11 Members. It has a quorum of three. Unless the House otherwise orders, all Members nominated to the Committee continue to be Members of it for the remainder of the Parliament.

The Committee has power:

- (a) to send for persons, papers and records, to sit notwithstanding any adjournment of the House, to adjourn from place to place, and to report from time to time;
- (b) to appoint specialist advisers either to supply information which is not readily available or to elucidate matters of complexity within the Committee's order of reference;
- (c) to communicate to any other such committee and to the Committee of Public Accounts and to the Deregulation Committee its evidence and any other documents relating to matters of common interest; and
- (d) to meet concurrently with any other such committee for the purposes of deliberating, taking evidence, or considering draft reports.

The following were nominated Members of the Committee on 14 July 1997:

Mr David Atkinson
Mr Nigel Beard
Dr Michael Clark
Mrs Claire Curtis-Thomas
Dr Ian Gibson
Dr Lynne Jones

Mr Nigel Jones
Dr Ashok Kumar
Mrs Caroline Spelman
Dr Desmond Turner
Dr Alan W Williams

Dr Michael Clark was elected Chairman on 30 July 1997.

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RESEARCH POLICY ISSUES

RESEARCH POLICY ISSUES

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SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS

- (a) There is an overwhelming case for a substantial real terms increase in Government expenditure on research over and above that which is required to make good the shortfall identified¹ later as an investment in the nation's future (paragraph 11).
- (b) We find the arguments in support of the dual support system for allocating public funds to university research overwhelming and endorse the overall conclusion in the Dearing Report that it should be retained (paragraph 18).
- (c) We recommend that the Government reject the National Committee of Inquiry into Higher Education's proposals for establishing a revolving loans fund to support research infrastructure (paragraph 29).
- (d) We accept that not all the money attracted from industry by the Joint Research Equipment Initiative is new money and are convinced that, in isolation, the Initiative will not solve the funding crisis in research infrastructure. Nevertheless, we welcome the Joint Research Equipment Initiative and the fact that it is to become an annual event as it will provide significant additional resources (paragraph 32).
- (e) While we do not ignore the responsibility that the Research Councils, and therefore by implication the Office of Science and Technology, have for contributing towards infrastructure where the work they fund places demands upon it, we are clear that this is primarily a matter for the Higher Education Funding Councils and therefore for the Department for Education and Employment and the corresponding departments in Scotland, Wales and Northern Ireland (paragraph 34).
- (f) We are convinced that there is still a real and urgent need for the Government to provide additional resources to resolve the immediate crisis in research infrastructure in the UK's universities. We recommend that this issue be treated with the utmost priority in the Comprehensive Spending Review. We further recommend that the Government allocate a total of between £410 and £430 million of new money, earmarked for research infrastructure, over the next three public expenditure rounds (paragraph 35).
- (g) We recommend that the Research Councils should pay the full indirect costs, excluding academic staff salaries, of the research which they fund in universities (paragraph 39).
- (h) We recommend that the Research Councils agree with universities, rates for indirect costs which recognise that such costs may vary from one type of research to another (paragraph 40).
- (i) We recommend that all increased expenditure incurred by the Research Councils as a result of paying a higher rate for indirect costs be matched by increased Government funding for the Research Councils (paragraph 41).
- (j) We recommend that the Higher Education Funding Councils examine the operation of the Research Assessment Exercise with a view to ensuring that it only rewards those institutions which attract grants and commissions for research on terms which provide for the meeting of the full economic costs either in cash or in kind (paragraph 47).
- (k) We recommend that the Government, as a priority, ensures that all UK funders of university research outside the dual support system pay the full economic costs of that research with full allowance made for contributions in kind (paragraph 56).

¹See paras 35 and 41.

- (l) We endorse the National Committee of Inquiry into Higher Education's recommendation that "institutions ... develop and implement arrangements which allow staff and external bodies to have access to, and understand the true costs of research". We recommend that this should be achieved over the next three years (paragraph 57).
- (m) We recommend that the Government continue its attempts to introduce some flexibility, to allow funding of indirect costs beyond 20% where appropriate, into the European Commission's Framework Programmes (paragraph 58).
- (n) It is of the utmost importance that the Research Assessment Exercise should reward research undertaken in collaboration at least equally with that done by a single department or institution. We are, therefore, disappointed that the Dearing Report made no specific recommendations about funding for collaborative research and that the consultation exercise launched last November by the Higher Education Funding Councils on the operation of 1996 Research Assessment Exercise made no specific reference to collaborative research (paragraph 65).
- (o) We recommend that the Funding Bodies and the Research Councils review all their funding procedures, including but not exclusively the Research Assessment Exercise and peer review, to identify any areas where collaborative, inter-disciplinary and multi-disciplinary research may be disadvantaged and then put forward and consult widely on options for change. Results from the current consultation on the Research Assessment Exercise should be used to inform, but not replace, parts of that review (paragraph 68).
- (p) We have grave reservations about the principle and practicality of any funding mechanism that relies on a distinction between scholarship and research (paragraph 71).
- (q) We strongly endorse the conclusions of the National Committee of Inquiry into Higher Education that university departments must make strategic assessments of their research activities and that departments whose strengths lie in teaching should not be inhibited from pursuing teaching excellence; but we cannot support its proposals for a per capita fund which are in principle wrong and in practice would be ineffective. The best way to achieve an appropriate balance between teaching and research is to enhance the status of, and reward for, good teaching rather than to undermine the pursuit of research excellence (paragraph 74).
- (r) In an era when much of the justification for deploying public funds in support of the research base rests on the economic and social benefits of research, the Research Assessment Exercise should make some recognition of research applied in these areas (paragraph 76).
- (s) We recommend that the Funding Bodies identify and evaluate the ways in which applied research can be more easily recognised and adequately rewarded and implement changes in the next Research Assessment Exercise (paragraph 77).
- (t) We urge the Higher Education Funding Councils to consider and implement means by which the tendency of the Research Assessment Exercise to encourage short-termism in research planning can be removed without extending the interval between Research Assessment Exercises to a duration inconsistent with robust financial management and accountability (paragraph 78).
- (u) We see little benefit and considerable risk in moving to a rolling programme of research assessment, the advantages of which are far from proven (paragraph 80).
- (v) We endorse the principle of international validation of Research Assessment Exercise ratings but cannot support the prescriptive recommendation of the

National Committee of Inquiry into Higher Education that all panels should have international membership. We believe that the Funding Bodies should have discretion in this respect (paragraph 83).

- (w) On balance we have concluded that the current level of selectivity is broadly acceptable and that, given the importance of fostering new talent and pursuing blue skies research, any moves towards greater selectivity would be unwise (paragraph 88).
- (x) We endorse the recommendation of the National Committee of Inquiry into Higher Education that a code of practice on training for post-graduate research students, monitored by the Quality Assurance Agency, should be introduced as soon as possible and that Higher Education Funding Council funding for new post-graduate studentships should be dependant on compliance with that code of practice from 2000-2001 onwards (paragraph 90).
- (y) We find, on balance, that we agree with the Dearing Report: while exposure to high-quality research and research practice is obviously an essential part of research training we agree that other factors, such as teaching quality, should also play a part in determining where to direct funding for post-graduate research training (paragraph 91).
- (z) We recommend that the Quality Assurance Agency, where appropriate, involve industrial representatives in the drawing up of a code of practice on post-graduate training (paragraph 92).
- (aa) Ensuring adequate funding for the research base in the long term is the only way to reverse the increase in short-term appointments. If implemented, our recommendations will enable institutions to make commitments to long-term funding for posts and therefore to reduce the proportion of their staff on short-term contracts. We would urge them to do so (paragraph 95).
- (bb) While we do not consider that it is for us, as the Science and Technology Committee, to comment in detail on the precise arrangements for public support of research in the arts and humanities, we endorse, in principle, the establishment of an Arts and Humanities Research Council and welcome the Government's commitment to consider this in the context of the Comprehensive Spending Review (paragraph 97).
- (cc) We strongly recommend that the Government should reject any proposals that the Arts and Humanities Research Council should be placed within the structure of the Office of Science and Technology (paragraph 98).
- (dd) We, like the majority of our witnesses, are unable to see any significant benefits in an Industrial Partnership Development Fund above and beyond those already delivered by existing schemes. (paragraph 101).
- (ee) We recommend that the Government investigate whether greater use could be made of the LINK scheme to reduce confusion caused by the large number of Government initiatives designed to promote research collaboration between industry and academia (paragraph 102).
- (ff) It seems obvious to us, if companies are to be asked to enter into a partnership or a collaboration, that they should be consulted on the basis of that partnership and therefore strongly endorse the National Committee of Inquiry into Higher Education's suggestion that "in future, Government departments should consult with industry before introducing shared cost schemes" (paragraph 103).
- (gg) We endorse the National Committee of Inquiry into Higher Education's recommendation that the Joint Information Systems Committee should

permanently fund and manage electronic communications and information services for researchers and should introduce charges for those services based on volume of usage (paragraph 106).

- (hh) We understand that the Funding Bodies have already asked for costed options for the provision of protected international bandwidth to be produced. We welcome this (paragraph 107).
- (ii) We recommend that the enhanced role, extended membership and advice of the Council for Science and Technology is disseminated widely so that its work carries the confidence of the wider research community (paragraph 110).
- (jj) We are unconvinced of the need for an advisory council for national research policy as envisaged in the Dearing Report (paragraph 111).
- (kk) We recommend that the Government, before considering the need for an advisory council on national research policy as envisaged in the Dearing Report, conduct a rigorous analysis of the mechanisms that are already in place and ensure that they are working properly (paragraph 112).

FIRST REPORT

The Science and Technology Committee has agreed to the following Report:—

THE IMPLICATIONS OF THE DEARING REPORT FOR THE STRUCTURE AND FUNDING OF UNIVERSITY RESEARCH

CHAPTER ONE: INTRODUCTION

1. The National Committee of Inquiry into Higher Education (NCIHE) was appointed in May 1996 by the then Secretaries of State for Education and Employment, Wales, Scotland and Northern Ireland against a background of growing concerns over how and by whom universities were to be funded and whether the contemporary levels of funding were adequate to enable universities to provide the highest quality education to a rapidly increasing student body and at the same time provide research and research facilities to the standard necessary to underpin their teaching and maintain the UK's economic performance and competitiveness. The NCIHE was instructed to "make recommendations on how the purposes, shape, structure, size and funding of higher education, including support for students, should develop to meet the needs of the United Kingdom, over the next 20 years, recognising that higher education embraces teaching, learning, scholarship and research".² It was also instructed to have regard to certain principles including that "higher education's contribution to basic, strategic and applied research should be maintained and enhanced, particularly in subjects where UK research has attained international standards of excellence or in Technology Foresight areas".³ The NCIHE, chaired by Sir Ron, now Lord, Dearing, made its Report—*Higher Education in the Learning Society*—to the Government in July 1997.⁴

2. The Government's Response to the entire Dearing Report was published on 25th February 1998.⁵ Many of the NCIHE's recommendations regarding research would involve additional public expenditure and therefore the Government have felt unable to make a full response until the on-going Comprehensive Spending Review has been completed. A fuller response on research is expected later this year. In producing this Report now we aim to influence the debate that informs that fuller statement and the wider debate on research and research funding in higher education.

3. While many of the topics covered in the NCIHE's Report (the Dearing Report) fall beyond our remit, we determined that we should examine those proposals put forward by the NCIHE which, having implications for the science, engineering and technology base in the UK—of which university research forms a substantial and significant part—fall clearly within our remit. Most of the discussion regarding research in the Dearing Report draws no distinction between research in science, engineering and technology and research in other subjects and we considered it would be impossible, and indeed, futile, to introduce such a distinction.

4. We received 53 memoranda and on 6 occasions took oral evidence. We would like to thank all those who provided oral or written evidence. We are also grateful for the help received from our specialist advisers for this inquiry; Professor Derek Burke, former Vice-Chancellor of the University of East Anglia; Professor Brian Clarkson, former Vice-Chancellor of the University of Wales; Dr Michael Elves, Director, Office of Scientific and Educational Affairs, Glaxo Wellcome plc; and Sir David Harrison, Master of Selwyn College, University of Cambridge.

²The National Committee of Inquiry into Higher Education, *Higher Education in the Learning Society* ("The Dearing Report"), July 1997, p. 3.

³*The Dearing Report*, p. 3.

⁴The Dearing Report.

⁵Department for Education and Employment, *Higher Education for the 21st Century: Response to the Dearing Report*, February 1998.

CHAPTER TWO: OVERVIEW

5. Public expenditure on research in the nation's universities can be traced back to the somewhat *ad hoc* funding arrangements of the late 19th century. Justification for such spending then, and for many years afterwards, rested on the grounds that research, in some way, had the property of a public good. Now, however, "given the importance of research to the economy and to society, the extreme pressure on the available funds for research, and the importance (and desire) for higher education institutions to be involved in research" there is a need to think more systematically and strategically about the justification for devoting substantial amounts of precious funds to research.⁶ The Dearing Report articulated four main reasons for research and for supporting it in higher education:

- to add to the sum of human knowledge and understanding;
- to inform and enhance teaching;
- to create an environment in which researchers can be encouraged and given a high level of training; and
- to generate useful knowledge and inventions in support of wealth creation and an improved quality of life.⁷

None of these reasons for pursuing research was disputed by our witnesses and we consider them all to be important.

6. Witness after witness told us of the crucial role university research played in sustaining the UK's international competitiveness and enhancing the quality of life of its citizens. The CVCP told us that it "is a crucial national asset. It contributes to economic growth ... and helps the nation to remain competitive in global markets. It advances knowledge on matters of vital public concern such as health, education and the environment";⁸ and Lord Dearing that investment in research was "the only strategy for the advanced world" if it is to remain competitive in the 21st century.⁹ Such views are supported in a Science Policy Research Unit (SPRU) report which concluded that "publicly funded basic research seems to have a substantial impact on productivity. Most of the productivity increases this century have come from our mastery over technology, and a large part of this has derived from a better understanding of the basic scientific processes ... this trend seems likely to continue since new technologies appear to be increasingly dependent on advances in basic research".¹⁰ This is an argument that the Government accepts; as the Minister for Science told us "maintaining and developing university research is absolutely crucial to the future prosperity, development and quality of life of our society".¹¹

7. Similarly, it would also be foolish to underestimate the contribution that training future researchers makes to maintaining prosperity. As the ABPI said "the need for a well-trained and qualified work force to sustain ... performance cannot be under-rated" particularly in science-based companies such as those in the pharmaceutical industry.¹² Such industries rely on universities not only as a source of innovative ideas but also to provide a "pool of talent" from which to recruit the highly-skilled technicians and scientists they need.¹³

8. These arguments are crucial to gaining the public consent for research funding that, as the Minister for Science said, is essential in a modern, civilised society.¹⁴ The Minister's position is supported by a study, commissioned by HM Treasury and conducted by SPRU, in which it

⁶The Dearing Report, para 11.13.

⁷The Dearing Report, para 11.2.

⁸Ev.p. 41.

⁹Q. 225.

¹⁰SPRU, *The Relationship Between Publicly Funded Basic Research and Economic Performance*, July 1996, p. 54.

¹¹Q. 531.

¹²Ev.p. 52.

¹³Ev.p. 52.

¹⁴Q. 533. *The Relationship Between Publicly Funded Basic Research and Economic Performance*, p. 50.

is argued that “a new “social contract” is emerging in which there are more specific expectations that basic research should generate economic and social benefits in return for the substantial public funds that it receives”.¹⁵ It is a position that we wholeheartedly support and, without wishing to denigrate the importance of university research to furthering knowledge or enhancing teaching, it is in the areas of economic prosperity and social benefit that we must focus when determining the appropriate level of support for research.

9. The UK’s overall spend (from all sources, not just the Government) on research and development as a percentage of Gross Domestic Product (GDP) does not compare favourably with our chief international competitors, especially if the comparatively high proportion the UK spends on defence-related research is taken into account (see table 1).

Table 1

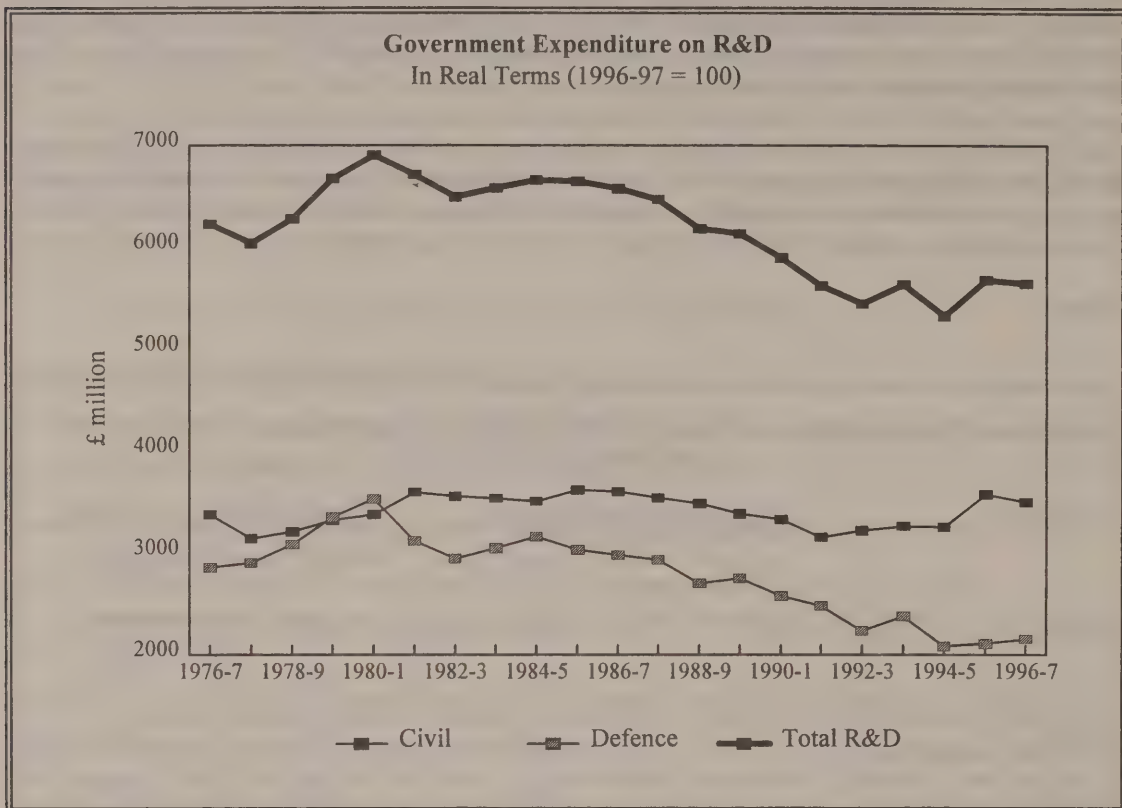
Estimated Expenditure on Civil and Defence Related Research and Development as a percentage of GDP, 1995				
Country	All sources of expenditure		Government Expenditure	
	Civil	Defence	Civil	Defence
Japan	2.8	n/a ¹	0.45	0.03
Germany	2.3	n/a ¹	0.83	0.08
USA	2.1	0.54	0.45	0.54
France	2.0 ²	0.4 ²	0.78	0.34
Canada	1.6	n/a ¹	0.50	0.02
UK	1.7	0.30	0.51	0.30
Italy	1.1	n/a ¹	0.55	0.03

Sources: Derived from SET Statistics 1997, Figure 7.2; Table 7.1 and Table 7.7.

Notes: (1) Breakdown not available or statistically insignificant; (2) Figures relate to 1994.

Figure 1 shows the level of total Government expenditure on research and development over the last twenty years broken down between civil and defence-related research and development.

¹⁵*The Relationship Between Publicly Funded Basic Research and Economic Performance*, p. 55.

Figure 1

10. An OST report in 1997 showed that, with only about 1% of the world's population, the UK conducts 5.5% of the world's research and that the UK's science base is the most cost effective in the world, as measured by citations per unit of expenditure.¹⁶ However, such evidence can only serve as an indication of past performance, based on past investment, not as a guarantee of future performance based on current and future investment. Moreover, as the Higher Education Funding Council for England (HEFCE) pointed out, in comparison to our "competitor countries we attract more private money from industry, [and] charities, per head of population, ... the Government contribution is the lowest of that comparative group by quite a long way".¹⁷ Government expenditure on research has declined both as a percentage of GDP and in real terms from £6.8 billion in 1987-88 to a budgeted £5.6 billion in 1997-98 (at 1995-96 prices).¹⁸ Yet the imperative of investment in research is reflected in developments in other countries. In 1996 the Japanese Government announced plans to double its investment in research and last year the Canadian Government earmarked an additional \$800 million for investment in research infrastructure.¹⁹ Earlier this year the Clinton Administration in the United States proposed an additional \$2 billion for research next year to be channelled through the National Institutes of Health, the Department of Energy and the National Science Foundation.²⁰

11. The UK has a vital national asset in its public research base; as we enter a century likely to be dominated by science-based innovation a continuation of high-quality research output is essential to maintaining economic growth and international competitiveness and improving quality of life for individuals—"in the 21st century, if this country cannot be at the cutting edge, we are bound to decline economically".²¹ **There is an overwhelming case for a substantial**

¹⁶Office of Science and Technology, *Quality of the UK Science Base*, March 1997, p. 1.

¹⁷Q. 312.

¹⁸Ev.p. 84.

¹⁹Q. 191.

²⁰*Nature*, 5 February 1998, Volume 391 Issue 6667, p. 517.

²¹Q. 504.

real terms increase in Government expenditure on research, over and above that which is required to make good the shortfall identified in paragraphs 35 and 41, as an investment in the nation's future.

CHAPTER THREE: RESEARCH FUNDING

Dual Support

12. As the UK's reliance on scientific advances has increased throughout the 20th century a systematic method of supporting research in higher education institutions has been developed. University departments active in research now receive the vast majority of their central Government funding from two sources—the two legs of the 'dual support' system—the Education Departments via the Higher Education Funding Councils (HEFCs) and the OST via the Research Councils.²²

13. Both legs of the dual support system fund research in a separate and distinct manner: the former through a block grant and the latter in response to individual applications.²³ Block grants from the HEFCs include money for teaching (T money) and money for research (R money). The HEFCs contributed 39% of the £2570.6 million universities received as research income in 1995–96. Such grants from the HEFCs form a variable percentage of the total research income of a particular university but are invariably the largest single source of research funding, although the total of funds received from the Research Councils and other funders can, in a research-intensive university, be larger than that received from the HEFCs. The research component of the block grant has three main purposes: to cover the majority of costs associated with basic research; to contribute to the costs of permanent academic staff, support staff and the premises required for research; and to contribute to the fixed costs of training research students such as premises, equipment and libraries.²⁴

14. The amount of R money granted by the HEFCs to each university is determined by a formula which takes into account the number of research-active academic staff and research quality as judged through the periodic RAE. The emphasis now placed on high levels of research performance, and the increased selectivity in funding, has been brought about by increasing "pressure on research funds" and greater "demands for accountability".²⁵ The HEFCE's main research grant allocation for 1997–98 was based on two factors: 97% of the allocation was determined by an assessment of the quality of past research as established by the 1996 RAE (QR money) (see para 60) and the remaining 3% by the volume of "generic" research carried out by universities (GR money). GR money is allocated according to the proportion of research income received by the university in collaboration with external users of research. Similar funding formulae are used by the other HEFCs. Through the operation of the RAE, which takes a snapshot of past research performance, HEFC research funding is essentially retrospective.

15. Once universities receive their block grant from the HEFC they are expected, but are not legally bound, to use T money for teaching and R money for research. (The HEFCs require universities to justify any major deviations.)²⁶ Nor are Vice-Chancellors required to mirror the allocations of R money resulting from the RAE in their allocations to those researchers who earned the funding by their rating in the RAE although, as the House of Lords Science and Technology Committee found, there are considerable pressures on them to do so.²⁷

16. In contrast to HEFC funding, Research Council funding is "essentially prospective and ... earmarked" to specific projects.²⁸ Researchers submit bids, based on detailed proposals for

²²The "Education Departments" are the Department for Education and Employment, the Scottish Office, the Welsh Office and the Department for Education Northern Ireland. The Higher Education Funding Councils are the Higher Education Funding Council for England (HEFCE), the Scottish Higher Education Funding Council (SHEFC), the Higher Education Funding Council for Wales (HEFCW), and the Department for Education Northern Ireland (DENI).

²³Both the Funding Councils and the Research Councils also fund research in universities in a number of supplementary ways but these are by far the most significant.

²⁴Ev.p. 99.

²⁵*The Dearing Report*, para 11.3.

²⁶HEFCE, Main Grant Allocation, 1997–98; Scottish Higher Education Funding Council, Main Grant Allocation, 1997–98; Higher Education Funding Council for Wales, Main Grant Allocation, 1997–98.

²⁷Second Report from the House of Lords Select Committee on Science and Technology, Session 1993–94, *Priorities for the Science Base*, HL Paper 12.

²⁸*The Dearing Report*, para 11.4.

specific research projects, to the relevant Research Council, which are then competitively assessed by peer review. Funding allocated as a result of such bids can either be by the responsive mode, where the Research Council has received an unsolicited bid which it has decided is of sufficient quality to attract funding, or may be managed, that is part of a larger research programme the subject of which has been pre-determined by the Research Council in accordance with its perceptions of national priorities. Universities are not the only institutions that can bid for Research Council funding—Research Councils may also spend their allocated budgets in their own research institutes or, more recently, in other research and technology organisations. Research Councils also fund training for researchers through fellowships and postgraduate studentships in universities and have developed certain other schemes such as interdisciplinary research centres, Faraday partnerships or the Teaching Company Scheme (TCS). The division of funding between support for specific responsive mode research projects, the provision of fellowships and studentships and participation in other schemes varies greatly between the six Research Councils.²⁹

17. We heard few criticisms of the dual support system itself, although the CBI told us that it did not believe that dual support funding was “serving the needs of the UK to best effect”.³⁰ They argued that the dual support system and the RAE in particular does not “give equal weighting to research of relevance to industry”; that it encourages all university departments to develop a research capability which is sometimes inappropriate and leads to a research performance of variable, and sometimes poor, quality; and that it was detrimental to high-quality teaching.³¹ Such deficiencies, they felt, created a fragile research base where the available funding was spread too thinly across “people who happen to think they ought to start doing research” and therefore not adequately supporting research teams of real excellence.³² Consequently they argued that “monies allocated to support research through the Funding Councils [should be] transferred to the Research Councils” and that the “Research Councils should fund Centres of Excellence on a five-year rolling basis”—a proposal that would, if implemented, end the dual support system.³³

18. In contrast, we also received substantial evidence indicating that the dual support system had several distinct advantages which it would be impossible to replicate in a system whereby public funds for research in universities were delivered through a single channel. SBS told us that the dual support system aimed to “provide a necessary degree of plurality, ... to foster diversity and support originality and excellence wherever it could be found” and that it had been “very successful” in meeting these objectives.³⁴ Various witnesses pointed to inherent benefits within the system such as the funding it gives to new areas of research and for the support of young researchers yet to build a reputation; the discretion it provides to Vice-Chancellors, allowing universities to develop and diversify according to their own particular strengths; and the long-term stability it provides.³⁵ King’s College, London told us that the dual support system was “the cornerstone of excellence”³⁶ and SBS that it was “an invention of genius” and “crucial to the brilliance of UK research”.³⁷ Similarly both the Baroness Blackstone, Minister of State in the DfEE, and John Battle MP, Minister for Science, Energy and Industry, argued that the dual support system should be retained: the Baroness told us that “this is the most sensible system for allocating funds for university research”,³⁸ and Mr Battle that it “works reasonably well” and that he was “not keen to see it dismantled”.³⁹ Many other witnesses from all parts of the research community, including ICI, the Wellcome Trust, SmithKline Beecham, the Chemical Industries Association and the Association of University Teachers (AUT), supported the retention of the

²⁹Parliamentary Office of Science and Technology, *Striking a Balance: The Future of Research "Dual Support" in Higher Education*, p. 36, July 1997.

³⁰Ev.p. 85.

³¹Ev.p. 85.

³²Q. 248.

³³Ev.p. 85.

³⁴Ev.p. 18.

³⁵Q. 475; Ev.pp. 18, 102, 197 and 216.

³⁶Ev. p. 216.

³⁷Ev.p. 16.

³⁸Q. 506.

³⁹Q. 535.

dual support system.⁴⁰ Given the advantages of the dual support system, and the widespread confidence it commands, we can see no reason to question its future and have concluded that it would indeed be a “mistake to confuse lack of funds with the failure of the ... system”.⁴¹ **We, as the NCIHE did, find the arguments in support of the dual support system for allocating public funds to university research overwhelming and endorse the overall conclusion in the Dearing Report that it should be retained.**

PRESSURES ON THE DUAL SUPPORT SYSTEM

19. Lord Dearing told us that combined funding from the Research Councils and the Funding Bodies for university research had increased by some 14% in real terms between 1984–85 and 1994–95.⁴² Indeed the trend towards increased funding still continues; the two legs will have increased expenditure on research in universities from a total of £1374 million in 1988–89 to £1727 million in 1998–99 (in 1994–95 prices).⁴³ Nevertheless, it was not only the CBI who supported the NCIHE’s conclusion that “it is becoming increasingly clear that the working of the dual funding system is less than adequate to meet the needs of a modern research base”.⁴⁴ Others, too, pointed out that, while the dual support system itself was successful, it had been made less effective by under-funding.⁴⁵

20. Witnesses argued that several factors had served to increase pressure on the dual support system even against a background of increasing public funding. The abolition of the so-called binary line between universities and polytechnics in 1992 approximately doubled the number of universities and increased the number of students. This, coupled with a real growth in the number of students entering higher education, has resulted in the number of university students rising from 671,000 in 1979–80 to 1.6 million in 1996–97.⁴⁶ The Robbins Report in 1963 identified roughly 22,500 academic staff involved in research.⁴⁷ In 1992 some 43,000 academic staff were entered into the RAE; by 1996, with numbers bolstered by staff in the old polytechnics who had historically received very little support for research from the Funding Bodies, the total entered in the RAE was 48,000.⁴⁸ Witnesses also argued that “research inflation is rather higher than ordinary RPI”,⁴⁹ and that the costs of scientific and engineering research in particular were ever increasing. Sir John Cadogan told us that continual investment in research equipment was essential as new techniques were discovered and introduced.⁵⁰ Dr Mulvey of SBS and Professor Joyner, Director of Research at Nottingham Trent University, stressed the detrimental impact on research funding caused by the reduction in capital allocations to universities since 1995.⁵¹ Professor Brook, Chief Executive of the EPSRC, told us that, in some disciplines in particular, tighter health and safety regulations had put further strain on resources.⁵²

21. Despite these rapidly increasing demands on slowly increasing funds, there has been no decrease in the volume of research conducted in the UK’s universities. Indeed, as the Dearing Report acknowledged, it has increased.⁵³ This, together with the increasing demands placed on dual support funds, has resulted in what many witnesses referred to as a “funding gap”. Estimates of the size of the funding gap vary (the Dearing Report refers to a range of estimates between £137 million and £720 million)⁵⁴ but most witnesses agreed on how it manifests itself.

⁴⁰ eg Ev.pp. 175, 179, 181 and 201.

⁴¹ Q. 299.

⁴² Q. 209.

⁴³ *Striking a Balance*, p. 7.

⁴⁴ *The Dearing Report*, para 11.15.

⁴⁵ Ev.pp. 18 and 179.

⁴⁶ *The Dearing Report*, para 3.69; Charts 3.1 and 3.2.

⁴⁷ Committee on Higher Education, *Higher Education Report of the Committee Appointed by the Prime Minister under the Chairmanship of Lord Robbins*, 1963.

⁴⁸ *The Dearing Report*, para 3.70.

⁴⁹ QQ. 63 and 452.

⁵⁰ Q. 39.

⁵¹ QQ. 63 and 65.

⁵² Q. 362. See also Ev.p. 1.

⁵³ *The Dearing Report*, para 11.16.

⁵⁴ *The Dearing Report*, para 11.17.

Lord Dearing told us that “in order to maintain ... output, resources have been used for current expenditure” to the detriment of long-term investment in staff, equipment, laboratories, premises and central services.⁵⁵ Professor Jack of the Wellcome Trust told us that “salaries of university employees and researchers ... have gone down by half compared with the national average wage and have barely kept up with inflation”.⁵⁶ We were told that many researchers were working 60 or 70 hour weeks and that others were performing inappropriate tasks, such as secretarial work or cleaning, as they lack the necessary support staff.⁵⁷

22. Some witnesses argued that the difficulties caused by these strains on the dual support system have been compounded by an increasing imbalance between the funding available from the Research Councils and that available from the Funding Bodies. Sir Aaron Klug, President of the Royal Society, said in his anniversary address “The science budget, which funds the Research Councils, has been largely held constant ... but the other leg of the dual support system, which is provided by the Higher Education Funding Councils, is failing”.⁵⁸ Certainly there has been a shift towards more Research Council funding—in the late 1980s the Funding Bodies provided over three times as much funding for university research as did the Research Councils. This situation was altered with the phased transfer between 1992 and 1995 of £154 million from the HEFCs to the Research Councils (a process commonly called “dual support transfer”) to allow the latter to make a contribution to the indirect costs of the projects they support.⁵⁹ Since then funds from the HEFCs have continued to fall in real terms while those from the Research Councils have increased. By 1995–96 HEFC funding of university research was less than twice that of the Research Councils. The imbalance created by these factors has been compounded by a trend in the Research Councils to spend more of their funds in universities rather than in their own institutes. In 1992–93, 34.2% of the Research Councils’ spend on research and development was spent in universities; in 1993–94 this figure was 37.3% and by 1996–97 had reached 40.1%.⁶⁰ Professor Joyner told us that the imbalance was so great that “we are coming dangerously close to the situation where we have only one funding source”.⁶¹

23. We were not surprised, therefore, when witnesses told us that it was those parts of the research base that relied most on HEFC funding—basic research, infrastructure and long-term, strategic management of research—that were most under-funded. SBS argued that it was now almost impossible to conduct any research on HEFC funding alone.⁶² This has the insidious consequence, as the Royal Society pointed out, that researchers spend more of their time and their limited HEFC resources on preparing and submitting applications for research funding to Research Councils and other organisations.⁶³ Professor MacFarlane told us “in some cases, where considerable effort is being expended in raising funding from other sources, a great deal of the time notionally supported by R money is in fact being spent on this activity and a figure of as much as 85% of some groups’ allocation has been quoted as being consumed in this way at one leading research university”.⁶⁴ Professor Webb told us of one of his colleagues who had refused to join him in making an application because “he spent the whole of the last three summers doing it unsuccessfully. It is rather like a spot the neutrino competition”.⁶⁵

Research Infrastructure

24. We are concerned that there seems to have been some confusion over the precise scope of the term “research infrastructure” both in the Dearing Report and in the debate surrounding it. In our use of the term we include standard modern laboratory furnishings and apparatus,

⁵⁵Q. 191.

⁵⁶Q. 469.

⁵⁷QQ. 63 and 272.

⁵⁸Sir Aaron Klug, President of the Royal Society, *Anniversary Address*, December 1997.

⁵⁹The dual support transfer was phased over three years with a transfer of £48 million in 1992-93, £125 million in 1993-94, reaching £154 million in 1994-95.

⁶⁰*Striking a Balance*, p. 26.

⁶¹Q. 63.

⁶²QQ. 63; Ev.p. 18.

⁶³Q. 472.

⁶⁴Ev.p. 224.

⁶⁵Q. 474.

major items of equipment, facilities and plant that is required for research in a particular field and that would be expected to be in a laboratory carrying out such research. We also include premises and their maintenance at an effective level, support (secretarial and technical) staff, libraries and information and communications technology and central services.

25. Many witnesses agreed that the consequences of the funding gap were felt most severely on research infrastructure. Lord Dearing told us “if you are working in a building which was designed for a different purpose and the infrastructure is aged then you are not getting effectiveness out of the equipment and the first class people” there.⁶⁶ We accept Lord Dearing’s point, that the poor state of research infrastructure reduces the value for money the UK derives from its investment in university research, but we do not consider that this is the entire scope of the problem. Other witnesses told us of the “potentially disastrous” and “parlous” state of research infrastructure.⁶⁷ Sir John Cadogan pointed out that under-investment in equipment in particular meant that researchers would not receive research contracts from, or be attractive as research partners to, industry or research charities.⁶⁸ As the ABPI told us, UK companies will “invest in research excellence and ... will invest wherever [they] find that throughout the world” and that they feared that UK pharmaceutical companies, for instance, were already beginning to fund research overseas because of the poor state of research infrastructure in UK universities.⁶⁹ Inadequate research infrastructure clearly also puts the researchers who depend upon it at a disadvantage when competing for Research Council funding. Witnesses further argued that the problem was not only chronic but urgent.⁷⁰ As SBS told us, “leaving this for 12 or 18 months is going to allow the damage to reach much too serious proportions. This is a crisis”.⁷¹ We agree.

REVOLVING LOAN FUND

26. The NCIHE reached a similar conclusion stating that “an immediate problem which affects the UK research capability is the serious state of the infrastructure and equipment needed to do it”.⁷² One of the proposals it made to rectify the situation was the creation of a revolving loan fund⁷³ of £400 to £500 million which would “support departments or institutions with a track record of conducting top quality research”.⁷⁴ (We consider the NCIHE’s other proposals concerning infrastructure and the indirect costs of research at paras 36–59.) The NCIHE envisaged that contributions to the fund would come from all those with an interest in sustaining the research base—Government, the Research Councils, the Funding Bodies, industry and research charities.

27. Witnesses raised three major objections to the concept of a revolving loans fund:

- Firstly, on a matter of principle, many witnesses felt that “Government should provide the infrastructure required to sustain the long-term strategic research base”,⁷⁵
- Secondly, that industry and research charities would be unwilling to contribute to a fund where they had no control over the direction of investment and received no measurable benefit and consequently would be unable to justify such contributions to shareholders or donors.⁷⁶ Indeed, as the AMRC pointed out, many charities may find legal difficulties

⁶⁶Q. 193.

⁶⁷Ev. pp. 178 and 184. *See also* Ev. pp. 55, 139, 175, 178 and 201.

⁶⁸Q. 39.

⁶⁹QQ. 135–6.

⁷⁰QQ. 159 and 478; Ev. p. 139.

⁷¹Q. 90.

⁷²*The Dearing Report*, para 11.32.

⁷³Under a “revolving loan” scheme monies would be lent to institutions for capital investments. The repayments made by the institutions would then be used for further lending, hence the monies would revolve around different institutions rather than be repaid to those contributing to the loan fund.

⁷⁴*The Dearing Report*, para 11.39.

⁷⁵Ev. p. 87. *See also* eg Ev. p. 173.

⁷⁶QQ. 226 and 313; Ev. p. 178.

in paying into such a fund under the terms of their trust deeds;⁷⁷ and

- Thirdly, that “until the financial state of the universities improves ... it would be absolute folly to encourage them to borrow money”.⁷⁸

We agree that it is Government's responsibility, given its crucial importance in sustaining wealth creation and quality of life, to ensure the future of the UK's research infrastructure; contributions that industry and research charities do make to research infrastructure in universities should be seen as additional rather than replacement funding. Moreover we detect no willingness towards, or even consent for, the scheme from the companies and charities who would be expected to make contributions. For example the ABPI said that it is not likely that “the pharmaceutical industry will want to contribute to a shared fund scheme ... the industry will not want to shift funds from its existing well-resourced, directed programme of focussed and strategic research collaborations, in selected centres, ... into a fund over which it had no direct control”.⁷⁹

28. The NCIHE suggested that loans made from the fund could avoid being counted in the Public Sector Borrowing Requirement (PSBR) if the “power to appoint the managing body did not rest solely with the Secretary of State and that the Government did not require the board to operate as a Non-Departmental Public Body”.⁸⁰ The Treasury have agreed that this was the case but added that “any Government payment to, or receipts from, the fund would affect the PSBR. All lending, on whatever terms, would increase the PSBR when the loan was made and reduce it when the loan was repaid.”⁸¹ The intention of the revolving loans scheme is that once money is repaid by one institution it is re-lent to another so any Government contribution would not be repaid to the Government and therefore would have to be counted in the PSBR.

29. We conclude that the NCIHE's proposals for a revolving loans fund of this nature are “essentially implausible”.⁸² **We recommend that the Government reject the NCIHE's proposals for establishing a revolving loans fund to support research infrastructure.**

JOINT RESEARCH EQUIPMENT INITIATIVE

30. Nevertheless, there are ways in which Government initiatives can lever in private sector funding for research infrastructure. Some witnesses pointed to the success of the Joint Research Equipment Initiative (JREI) although we heard some reservations about the way it had initially been launched.⁸³ Under the JREI, first run in 1996, academics are invited to bid for funds, made available by the HEFCs and the Research Councils, for equipment for particular research projects provided that the money they bid for is at least matched by private sector funding and that the research they wish to conduct is of high quality and relevant to science and technology priorities identified under the Foresight Programme. Results of the JREI to date are shown in table 2.

Table 2

Joint Research Equipment Initiative 1996 and 1997				
Year	Applications for funding	Awards made	Public sector contribution	Private sector contribution
1996	250	172	£25 million	£25 million
1997	400	250	£44.5 million	£65 million

Sources: Office of Science and Technology; Department for Education and Employment

⁷⁷Q. 426.

⁷⁸Q. 455. See also eg Q. 104.

⁷⁹Ev.pp. 55–6. See also eg Ev. 178.

⁸⁰*The Dearing Report*, para 11.40.

⁸¹Ev.p. 218.

⁸²Q. 59.

⁸³Q. 157.

31. Although the figures show that the JREI has been successful in attracting private sector support for investment in research equipment, it is not clear to what extent the Initiative has succeeded in attracting new money. The CBI told us “although CBI companies have responded to joint initiatives, such as ... the Joint Research Equipment Initiative, they have stated that these do not attract new money, but rather cause a re-allocation of existing budgets”.⁸⁴ The implication of this statement is that industry is using the JREI to lever Government investment into research equipment rather than the other way round.

32. On 13th January 1998 the Government announced, following the success of the first two rounds, that the JREI would become an annual event. This is a development which we applaud. We also congratulate the Minister for Science for successfully arguing that the £7.2 million saved from the science budget on international subscriptions, as a result of the strength of the pound, should be diverted to the JREI.⁸⁵ However, as the MRC pointed out, the JREI only goes a small way towards closing the research infrastructure funding gap.⁸⁶ It is not certain for how long, or to what extent, companies will continue to support the JREI: “industrial participation in future rounds of the JREI ... should not be taken for granted”, although indications of over-subscription in the latest round suggested that there is some scope for extension of the scheme.⁸⁷ Nor will the extra £165 million which the Government announced in September 1997, £25 million of which is intended for research and teaching infrastructure, resolve the crisis. **We accept that not all the money attracted from industry by the JREI is new money and are convinced that, in isolation, the Initiative will not solve the funding crisis in research infrastructure. Nevertheless, we welcome the JREI and the fact that it is to become an annual event as it will provide significant additional resources.**

INVESTMENT IN INFRASTRUCTURE

33. Estimates of the amount of investment needed to bring infrastructure up to the standard required vary. Following a detailed survey in 1996, Policy Research in Engineering, Science and Technology (PREST) estimated that £474 million would be needed over the following five years for research equipment alone.⁸⁸ The HEFCE pointed out that this figure was based upon researchers own estimates of their needs and suggested that it would be legitimate to reduce the figure by 25% to £355 million to reach a more realistic figure.⁸⁹ If the revenue generated by the two JREIs to date is then taken into account, the figure required for research equipment is in the region of £225 million. As the HEFCE pointed out, it is then necessary to add the funding required to bring physical premises up to scratch which, according to a recent survey, is in the region of £200 million.⁹⁰ Based on these assumptions, the overall funding needed to bring research infrastructure up to the required standards is in the region £425 million. A more recent study conducted by Segal Quince Wickstead on behalf of the HEFCE, using a different basis for determining the level of investment required, proposed a figure of £445 million for both equipment and premises. If, say, half the £25 million earmarked for infrastructure of the extra £165 million the Government have provided for higher education, is spent on research infrastructure then both figures will have to be adjusted downwards by £12.5 million. This means that the total investment needed in research infrastructure to bring it up to an acceptable standard is between £412.5 and £432.5 million.

34. Both the Ministers who gave evidence acknowledged that there was a serious problem in funding research infrastructure but we were concerned that there seemed to be confusion over which department should be responsible for providing a solution.⁹¹ The Baroness Blackstone told us that it was a joint responsibility between the DfEE, the DTI and the OST whereas Mr Battle told us “it is really within the bailiwick of the Department for Education ... they are

⁸⁴Ev.p. 96.

⁸⁵Q. 550.

⁸⁶Q. 354.

⁸⁷Ev.p. 97.

⁸⁸Policy Research in Engineering, Science and Technology (PREST), *Survey of Research Equipment in United Kingdom Universities*, 1996, p. 66.

⁸⁹Ev.p. 113.

⁹⁰Ev.p. 113.

⁹¹QQ. 516 and 539.

responsible”.⁹² While we do not ignore the responsibility that the Research Councils, and therefore by implication the OST, have for contributing towards infrastructure where the work they fund places demands upon it, we are clear that this is primarily a matter for the HEFCs and therefore for the DfEE and the corresponding departments in Scotland, Wales and Northern Ireland.

35. We are convinced that there is still a real and urgent need for the Government to provide additional resources to resolve the immediate crisis in research infrastructure in the UK’s universities. We recommend that this issue be treated with the utmost priority in the Comprehensive Spending Review. We further recommend that the Government allocate a total of between £410 and £430 million of new money, earmarked for research infrastructure, over the next three public expenditure rounds.

Indirect Costs

36. In addition to resolving the immediate crisis in research infrastructure in universities there is an obvious need to guarantee infrastructure standards in the longer term in order to sustain high-quality research and to ensure that the greatest possible value for money is achieved from the capital investment we have already recommended. The NCIHE recognised this and sought to address it by making recommendations that would ensure that those who funded research in universities made an appropriate contribution to what are termed the indirect costs of research.

THE RESEARCH COUNCILS

37. Much of the Government’s science budget (some 96.3% in 1997–98)⁹³ is allocated to the Research Councils who, after deducting their own costs and amounts to support their own units and institutes, allocate money to research projects (see para 16).⁹⁴ Originally the Research Councils made no explicit contribution to the indirect costs of the research they funded in universities but, following the dual support transfer from 1992 to 1995, Research Council grants included a nationally applied figure of 40% of the non-academic staff salary costs associated with that project.⁹⁵ This figure was subsequently increased to 45% and more recently to 46% of salary costs. Nevertheless, it has been argued, and the NCIHE were convinced, that the true level of indirect costs are between 55% and 65%.⁹⁶ Consequently, the NCIHE recommended that the indirect costs element of Research Council grants should be “increased to 60%, [of staff salary costs] or such higher rate up to 100% as the institution can justify”.⁹⁷

38. Traditionally it has been accepted that there should be no need for Research Councils to pay the indirect costs for research as the other leg of the dual support system provided for the academic salaries and indirect costs. However, as we have already seen, there has been a fundamental shift in the balance of resources provided by each leg, based partly on an increased recognition of the need to target research in priority areas. As the Royal Society argued, the result of this shift has been that the vast majority of R money from the HEFCs is consumed in providing the salaries of academic staff carrying out basic research and the facilities they require for it. This is the essential foundation, the baseline, for speculative research which forms the springboard from which these researchers can apply for funds from other sources. Consequently, the block grant from the HEFCs is no longer sufficient to meet even those indirect costs of Research Council funded projects which are not already covered by Research Council grants.

39. Each of the Research Councils has accepted in principle that they should pay the indirect costs of the research they fund in universities.⁹⁸ The ESRC told us that “full funding of

⁹²QQ. 503 and 545.

⁹³*Striking a Balance*, p. 24.

⁹⁴HEFCE funding, as it comes from the Department of Education and Employment, is part of the Education Vote and therefore is not part of the Science Vote.

⁹⁵Q. 534.

⁹⁶Coopers and Lybrand, *Review of Dual Support Transfer*, 1995; *The Dearing Report*, paras 11.18 and 11.29.

⁹⁷*The Dearing Report*, para 11.29.

⁹⁸Ev.pp. 116, 119, 189 and 196.

research by Research Councils outside of academic staff salaries would be welcome”;⁹⁹ the EPSRC said “it seems appropriate that the Research Councils should provide the correct overhead for the work which they support. It has a logic to it which is compelling”.¹⁰⁰ We agree. **We recommend that the Research Councils should pay the full indirect costs, excluding academic staff salaries, of the research which they fund in universities.**

40. There are two ways in which this could be achieved: either by the Research Councils negotiating a figure for indirect costs with each institution, perhaps even for each research project or subject discipline, or by the Research Councils and universities agreeing a notional rate as an average reflection of genuine indirect costs. The first option is certainly workable, as the US experience demonstrates, but we accept that it has some disadvantages. The BBSRC, for instance, told us that “a system of variable indirect costs level ... would be expensive to manage”.¹⁰¹ The ESRC believe that it is “doubtful if the additional complexity and administrative resources required for multiple rates are an efficient and effective way of providing for public support of research”.¹⁰² Nevertheless we, like the BBSRC, could not accept “the imposition of a 60% rate which is not based on any reliable analysis”.¹⁰³ Such a system would lead to gross inequalities between research projects where academic staff costs form a substantial proportion of the overall costs, such as is often the case in the social sciences, and research projects which require substantial non-staff related expenditure. Unless robust procedures are introduced to ensure that the indirect costs paid by the Research Councils are a genuine reflection of the costs imposed on the university some the inadequacies of the present system will persist. **For these reasons we recommend that the Research Councils agree with universities, rates for indirect costs which recognise that such costs may vary from one type of research to another.**

41. The Dearing Report outlined the three options for financing the additional costs that the Research Councils would incur in paying a larger sum in respect of indirect costs, namely:

- by reducing the volume of research funded;
- by transferring the shortfall from the Funding Bodies to the Research Councils (ie further dual support transfer); or
- by a real increase in Government funding.¹⁰⁴

As the NCIHE pointed out reducing the volume of research funded by the Research Councils “would not be in the long term interests of the UK given the economic, social and cultural importance of research”.¹⁰⁵ The MRC *inter alia* agreed, saying that it would cause “irreparable damage to many research programmes”. The ESRC quantified the effect it would have on their research portfolio saying that an increase in the indirect cost element of grants to 60% of non-academic staff salaries would decrease the volume of research they could fund by 8% and that an increase to 100% would reduce volume by 25%.¹⁰⁶ Additional dual support transfer would increase the imbalance between the two legs of, and therefore would serve to undermine further, the dual support system itself. Nor would it, as the EPSRC argued, “reinvigorate the research base—as the baseline funding for research would not be increased by such a transfer”.¹⁰⁷ The NCIHE was clear that the third option was preferable. **We are clear that it is the only acceptable or possible option. We recommend that all increased expenditure incurred by the Research Councils as a result of paying a higher rate for indirect costs be matched by**

⁹⁹ Ev.p. 22.

¹⁰⁰ Q. 368.

¹⁰¹ Ev.p. 116.

¹⁰² Economic and Social Research Council's Response to the Report of the National Committee of Inquiry into Higher Education, para 14.3.iv. See also Ev.p. 24.

¹⁰³ Ev.p. 116.

¹⁰⁴ *The Dearing Report*, para 11.31.

¹⁰⁵ *The Dearing Report*, para 11.31.

¹⁰⁶ Economic and Social Research Council's Response to the Report of the National Committee of Inquiry into Higher Education, para 14.2.

¹⁰⁷ Ev.p. 211.

increased Government funding for the Research Councils.

Indirect Costs of Non-Dual Support Funded Research

42. The main emphasis of the research sections of the Dearing Report was on the way the dual support system worked and Government funding for research. However, the last decade or so has seen a substantial increase in the volume of university research funded from non-Governmental sources.¹⁰⁸ Indeed, the BBSRC argued that “the growth of... non-research council funding at less than full economic cost is the principle source of the funding gap”.¹⁰⁹

43. Table 3 shows the relative importance of the different sources of university research income in comparison to dual support and other Government funding in 1995–96.

Table 3

University Research Income in Real Terms (£ million) (1996-97 = 100)					
Source	1992-3	1993-4	1994-5	1995-6	% in 1995-6
HEFCs	1047.7	1038.0	1073.9	1045.2	39%
Research Councils	380.6	453.7	508.0	546.7	21%
UK Charities	271.3	310.9	330.5	347.6	13%
Government Departments	156.7	159.0	257.7	277.0	10%
UK Industry	133.5	138.8	166.8	174.1	7%
EU Bodies	83.8	104.0	153.1	151.7	6%
Other	132.4	116.8	101.4	99.4	4%
Total	2206.0	2321.2	2591.4	2641.7	100

Sources: Derived from SET Statistics 1997, Table 5.1; *Striking a Balance*, Table 4.2; HESA, *Resources for Higher Education*, 1995-96; Office of National Statistics.

Note: “Other” includes individuals, local authorities and higher education institutions.

44. Whether research charities, industry and Government departments do pay, or indeed should be paying, the full economic costs of the research they fund by contract, or by grant, has been debated without resolution for a number of years.¹¹⁰ Nevertheless, as the significance of such funding has increased and the pressures on public funding for research have risen, it has become more important that the issue should be resolved satisfactorily. As Sir John Cadogan put it “in some of those cases there is perhaps a shortfall of overhead funding and this in turn puts pressure on those who do pay overheads like the research councils”.¹¹¹ One recent study estimated that the shortfall in 1994–95 amounted to more than £500 million.¹¹² Another study, commissioned by the HEFCE and the CVCP, also concluded that there was a shortfall and that it was growing.¹¹³ It is not an area to which the NCIHE, unfortunately, devoted much attention beyond commenting “that charities may be willing to share more of the indirect costs of research with institutions if there is greater clarity in how those costs arise”.¹¹⁴

45. In 1988, as it became increasingly clear that universities were not recovering the full costs of externally funded research, the CVCP issued guidance to universities which pointed out that

¹⁰⁸*Striking a Balance*, p. 20.

¹⁰⁹Ev.p. 116.

¹¹⁰“Full economic costs” means all direct and indirect costs including the salaries of academic staff.

¹¹¹Q. 23.

¹¹²Report of the Forum on Research Infrastructure, CVCP, 1997.

¹¹³CVCP, *Research in Universities: The Funding Gap*, 1997.

¹¹⁴*The Dearing Report*, para 11.19.

in some cases the indirect costs of research would equal the direct costs.¹¹⁵ In the early 1990s the Advisory Council on Science and Technology (ACOST) recommended that universities should recover the full costs of sponsored research and the then Government agreed that universities should have a better idea of the costs of conducting research.¹¹⁶ Nevertheless, as others have noted before us, it is still the case that “the indirect cost contribution from non-government sources has not been sufficient to meet the full costs of research”.¹¹⁷ A number of reasons, which might explain why such a shortfall has arisen, have been suggested, chiefly that:

- in an effort to be competitive universities have understated the actual costs of doing the research;¹¹⁸
- as the RAE rewards universities for obtaining research income from non-dual support sources, universities have a direct incentive to accept research projects below full economic costs;¹¹⁹
- universities have had difficulty in persuading research funders to pay a higher rate towards indirect costs than that paid by the Research Councils;¹²⁰ and
- in the case of research charities, there has traditionally been an agreement with the HEFCs that the infrastructure they provide should support charity-funded research.¹²¹

46. We, like the NCIHE, believe that universities have the solution to the first three of these in their own hands.¹²² Universities have discretion over which research project grants, either from Government or non-Government sources, to accept and which to decline; they should not accept research contracts which do not provide for the full economic costs of the research without fully weighing the consequences of doing so.

47. The RAE (which we discussed more fully at paras 60–83) rewards universities for attracting non-dual support funding for wholly justifiable reasons. It is right that universities should be encouraged to develop external sources of funding and that some recognition should be made of the additional costs this imposes. However, we do not consider that this should lead universities to accept research funding at other than full economic costs, unless such research is undertaken in collaboration or partnership with the funders and other benefits in kind flow to the university. **We recommend that the HEFCs examine the operation of the RAE with a view to ensuring that it only rewards those institutions which attract grants and commissions for research on terms which provide for the meeting of the full economic costs either in cash or in kind.**

48. We consider the issues surrounding charity funding for research below (see paras 52–4).

INDUSTRY

49. Approximately 5–7% of universities’ total research income each year comes from UK industry (see table 3).¹²³ Although the £169.7 million invested each year by industry in university research is only a small proportion of its overall research and development spend (which is in the region of £7 billion)¹²⁴ UK industry does compare favourably with other countries in this respect.¹²⁵ Industry funds research in universities in a number of different ways. Companies may commission specific pieces of work to be carried out by university departments

¹¹⁵CVCP, *The Costing of Research and Projects in Universities*, 1988.

¹¹⁶*Striking a Balance*, p. 21.

¹¹⁷*The Dearing Report*, para 11.19.

¹¹⁸Q. 67.

¹¹⁹Q. 402.

¹²⁰*The Dearing Report*, para 11.21.

¹²¹*Striking a Balance*, p. 21.

¹²²*The Dearing Report*, para 11.21.

¹²³*Striking a Balance*, p. 4; Ev.p. 6.

¹²⁴Q. 265.

¹²⁵Q. 265; Ev.p. 33.

to obtain results for their own use and which may be of direct commercial value to the company in the development of products or processes. This can be called “contract research”. Alternatively companies may collaborate with university researchers through support for more basic research projects. This will usually be intended to underpin the basic research carried out within the company’s own laboratories. This can be called “collaborative research”. These latter projects are usually of mutual interest to both academic and industrial partners, and may be of strategic importance to either, or most often to both. They are therefore entered into on the basis of partnership with researchers from both sides providing an intellectual input and contributing expertise and resources. The Government has established a number of schemes to promote collaboration between university researchers and industry such as “LINK” and the TCS. Evaluations of these schemes have shown them to be of benefit to all involved.¹²⁶

50. The present arrangements for the payment of indirect costs by industry depend on the nature of the collaboration and also on the degree of partnership. Where the research is of the contract type it is usual for the company to pay the full costs of the research involved, including the indirect costs calculated by the university. In the case of collaborative research the typical arrangement will mirror that of the Research Councils in many respects, with the indirect costs being estimated as 45% of either the salary costs or all the direct costs of the project. In the latter case this may equate to 55%–65% of salary costs where the project has heavy running costs. However, in the case of partnership research arrangements, which are the common mode in some industries, the non-cash contribution of the company must be taken into account. This includes some supervisory activity, some intellectual and practical research input into the projects, and will also often include access for the academic partner to the company’s research facilities which are not available in the university. In these circumstances, it is clearly for the partners involved to determine the responsibility for meeting the costs, both direct and indirect, of the projects and it may be that precise cost allocation between partners is not appropriate.

51. There is, however, a third mode which companies employ to fund research in universities. In this instance the project may be of a purely basic, “blue skies”, nature in which the company may have an interest in the outcomes, and will monitor them, but does not become directly involved in the research activities. Such projects are typically funded on the same model as collaborative research, with universities left to pick up the indirect costs not met by the company without any benefits in kind. We do not consider that this is a justifiable or sustainable situation, amounting as it does to a Government subsidy. We make an appropriate recommendation below (see para 56).

CHARITIES

52. The enormous contribution made to the UK science base by research charities should not be understated, particularly in the bio-medical field where “there is as much money being invested again” by medical research charities “as the Government invests through the MRC”.¹²⁷ Table 3 shows that in 1995–96 13% of all university research income came from UK research charities. The research charities use a number of methods for the funding of research in their particular areas of interest. The main route of funding is via the responsive mode, as in the case of the Research Councils, with applications for particular projects submitted by academic researchers and assessed by peer review or the charity’s own experts. In some cases, the charity may solicit project proposals from academics for inclusion in a particular programme of research that it has determined to be of strategic importance to its activities. In the case of a small number of the larger research charities, the charity funds its own research units—usually implanted within a university—and the researchers in that unit may work in partnership with university staff.

53. Generally the charities pay only the direct costs of the research they fund and make no contribution to the indirect costs of those projects. The AMRC argued that “charities under their research activity cannot give universities £40 for every £100 to pay for university scholarships, swimming pools ... they are research charities and they can pay for research”. We entirely agree.

¹²⁶Ev.p. 6.

¹²⁷Ev.p. 139.

Our contention is that research charities, and other non-dual support funders of research, should be paying for the full economic costs of the research they fund and no more. We do not consider that this would be an anathema to research charities—as the AMRC pointed out, 17% of their members research spending is already directed to institutes outside the university sector where they already pay the full economic costs of their research.¹²⁸

54. Some witnesses argued that some research charities already made a significant contribution to research infrastructure in universities.¹²⁹ The Wellcome Trust told us that since 1993 they had invested “£123 million for research buildings in the UK university sector and about £90 million on equipment, all of which now remain in the university sector ... to continue this investment in biomedical science, the Trust has established an infrastructure panel with a budget of £15 million per annum”.¹³⁰ However, there is no guarantee that there will be any correlation between those departments or institutions which receive research grants from the charities and those who benefit from gifts of equipment and buildings. Furthermore, from the data submitted by the AMRC it would appear that the charities’ contribution in the form of buildings and equipment only amounts to about 17% of their total funding for research programmes, projects, fellowships and studentships.¹³¹ This is considerably less than the indirect costs paid at present by the Research Councils or industry which, as we have already seen, are not sufficient to meet the true costs of research. While we do not wish to denigrate the importance of such investment, or to discourage it, we believe that it is primarily the responsibility of Government to fund basic research infrastructure and that research charities should see fully funding the research they commission as their first priority.

UK GOVERNMENT DEPARTMENTS

55. Another significant non-dual support source of research funding for universities is UK Government departments which commission projects from their own research budgets. In 1994–95 research funding from Government sources outside the dual support system accounted for 11% of all research income in the UK’s universities. The contribution they make to the indirect costs of such research varies from 0% to full economic costs. As the House of Lords Committee on Science and Technology pointed out in 1994 “this not only short-changes universities; it also weakens their position in negotiating prices with companies both at home and abroad”.¹³² There are concerns that Government departments may not be willing to award contracts to universities that charge indirect costs to a greater extent than they do at present but we see no reason why central Government provision for the support for the national research base should be undermined by individual Government departments making inadequate provision for their research needs.¹³³

56. We recommend that the Government, as a priority, ensures that all UK funders of university research outside the dual support system pay the full economic costs of that research with full allowance made for contributions in kind.

FULL ECONOMIC COSTING

57. If funders are to pay the full economic costs of the research they commission in the university sector it is clearly essential that universities are able to identify accurately the indirect costs of research as well as the direct costs. The NCIHE implied that this was not the case at present and this was borne out by evidence we received.¹³⁴ Sir John Cadogan told us that if funders were to be asked to pay the full economic costs of research “there would have to be much greater transparency by the institutions than there is now, very much greater” and the CBI that “universities need to have better financial systems so that they understand where their

¹²⁸Q. 407.

¹²⁹Ev.pp. 132 and 140.

¹³⁰Ev.p. 140.

¹³¹Ev.p. 131.

¹³²Report from the House of Lords Select Committee on Science and Technology on *International Investment in UK Science*, HL Paper No. 36, October 1994, para 4.39.

¹³³*Striking a Balance*, p. 21.

¹³⁴*The Dearing Report*, para 11.19.

money is and what they need”.¹³⁵ Some witnesses argued that to place such requirements on universities could be counter-productive because of the increased bureaucracy that would result but others pointed out that some universities already met the required standard.¹³⁶ As the Minister for Science pointed out “the structure is already there for [universities] to isolate and identify costs”.¹³⁷ There are already some initiatives in progress aimed at helping to identify costs in those universities which do not already do so: the AMRC told us that they were already in discussions with the HEFCE;¹³⁸ the Scottish Funding Council is leading a study in six universities;¹³⁹ and the Treasury are in discussions with the DfEE regarding the ways in which universities account for public money.¹⁴⁰ If some universities can reach the required standard for identifying and allocating costs without the imposition of over bureaucratic systems we see no reasons why others cannot. We, like the Government, welcome the Joint Costing and Pricing Initiative which is about to be launched by the university sector and the Funding Bodies.¹⁴¹ **We endorse the NCIHE’s recommendation that “institutions ... develop and implement arrangements which allow staff and external bodies to have access to, and understand the true costs of, research”.**¹⁴² **We recommend that this should be achieved over the next three years.**

THE EUROPEAN UNION

58. Universities in the UK have become increasingly successful in attracting European Union (EU) funding for research under the European Commission’s Framework Programmes (see table 3). Indeed, “it is clear that the UK is the research partner of choice by other EU countries”.¹⁴³ In the Fourth Framework Programme the UK was a partner in 75% of all projects. However, as the Dearing Report acknowledges, “the EU does not meet the full costs of research”.¹⁴⁴ Several witnesses were critical of this and were keen to see the EU move towards paying the full economic costs of research.¹⁴⁵ Such criticism ignores the fundamental nature of the Framework Programmes: the Framework Programmes are specifically designed to encourage collaborative research. As such, institutions which attract Framework funding can choose between receiving 100% of the direct costs of the research and an additional 20% towards indirect costs or 50% of the full economic costs. As the OST told us, this is wholly in line with the concept that “grants should be an incentive to cross border collaborative research”.¹⁴⁶ Nevertheless we, like the Government, recognise that it would be “to the detriment of the UK research base if the allowable level of overheads were to ultimately prove a disincentive to UK participation in the Framework Programme”.¹⁴⁷ **We recommend that the Government continue its attempts to introduce some flexibility, to allow funding of indirect costs beyond 20% where appropriate, into the European Commission’s Framework Programmes.**

59. In the meantime, universities still have to find the resources to cover the indirect costs of EU-funded research that are not covered by EU grants. The NCIHE urged the Funding Bodies to adjust their funding formulae so that they contribute to indirect costs of EU funded research.¹⁴⁸ This proposal found little favour among our witnesses. The MRC, for instance, argued that it would be wrong to use UK Government research funds to support EU research objectives in preference to our own national priorities. We believe that it should be in the hands of the universities themselves to decide how to secure the additional resources necessary. Provided our recommendations on HEFC and Research Council funding are met it would be within the means

¹³⁵ QQ. 29 and 278.

¹³⁶ QQ. 320, 466 and 520.

¹³⁷ Q. 536.

¹³⁸ Q. 416.

¹³⁹ Q. 322.

¹⁴⁰ Ev. p. 218.

¹⁴¹ Department for Education and Employment, *Higher Education for the 21st Century: Response to the Dearing Report*, February 1998, p. 29.

¹⁴² *The Dearing Report*, recommendation 52, p. 234.

¹⁴³ *Quality of UK Science Base*, para 45.

¹⁴⁴ *The Dearing Report*, para 11.20.

¹⁴⁵ Eg Q. 113.

¹⁴⁶ Ev. p. 5.

¹⁴⁷ Ev. p. 5.

¹⁴⁸ *The Dearing Report*, para 11.20.

of universities to support such research from there own resources, as many do at present, or they could seek additional partners.

CHAPTER FOUR: THE RESEARCH ASSESSMENT EXERCISE AND SELECTIVITY

The Research Assessment Exercise

60. We have already discussed the basis on which the Funding Bodies allocate research funds to universities and the use they make of the RAE to determine research quality (see para 14). The RAE was first introduced in 1986 and there have been three subsequent exercises, the most recent in 1996. The RAE assesses the work of groups of researchers across a range of topics which are divided into “units of assessment”. All research submitted to the RAE is judged by assessment panels. In the first three RAEs, submissions were ranked according to a five point scale but in the 1996 RAE a seven point scale was used. (The rating scales used in the 1996 RAE are reproduced in an annex.) The 1996 exercise attracted a total of 2,896 submissions from 192 higher education institutions and 60 assessment panels covered 69 areas of assessment. Each assessment panel works to the same broadly-based criteria but each panel is at liberty to choose its own particular methods.

61. The Dearing Report highlighted particular criticisms that have been levelled at the operation of the RAE and the way in which it dictates the behaviour of institutions, including:

- that it fails to assess collaborative research well, particularly that undertaken in collaboration with industry;¹⁴⁹
- that it acts as a disincentive to multi-disciplinary research;¹⁵⁰
- that it is not the best way of identifying research excellence as it assesses departments rather than researchers and research teams;¹⁵¹ and
- that it encourages all departments to develop, or maintain, a research capability even when such a capability may not be appropriate or desirable and that, consequently, it wastes resources by encouraging submissions with little or no chance of success and detracts from teaching.¹⁵²

62. Our inquiry has revealed a number of further concerns regarding the operation of the RAE, chiefly:

- that it places too great an emphasis on publication as a measure of research quality and not enough on judging the usefulness of research;¹⁵³
- that it promotes short-termism in research planning;¹⁵⁴
- that it places too great an administrative burden on researchers and institutions and is not cost effective;¹⁵⁵ and
- that it does not apply equal standards across all disciplines.¹⁵⁶

We also heard complaints both that the RAE was not selective enough in its support for research and, conversely that there was no room for further selectivity without causing long-term damage to the research base.¹⁵⁷ We discuss each of these below.

¹⁴⁹*The Dearing Report*, para 11.71.

¹⁵⁰*The Dearing Report*, para 11.98.

¹⁵¹*The Dearing Report*, para 11.22.

¹⁵²*The Dearing Report*, para 11.63.

¹⁵³Q. 187.

¹⁵⁴Ev.p. 206.

¹⁵⁵Ev.p. 17.

¹⁵⁶Ev.pp. 174 and 204–5.

¹⁵⁷Association of University Teachers, paras 5–7. Ev.pp.86 and 178.

COLLABORATIVE AND MULTI-DISCIPLINARY RESEARCH

63. The NCIHE acknowledged that many in the research community were concerned that the RAE discouraged collaborative research but did not “come across any convincing evidence that collaboration was genuinely inhibited to a serious extent by the exercise”.¹⁵⁸ However the NCIHE did go on to recommend to the HEFCs and the Research Councils that “they review their mainstream teaching and research funding arrangements to ensure these do not discourage collaboration between institutions; and that, where appropriate, they encourage collaboration”.¹⁵⁹

64. A 1995 study by the SPRU found that the number of collaborative research projects was increasing and projected that by 2000, at current growth rates, collaborations between institutions would account for more than 50% of the UK's scientific output.¹⁶⁰ However, as the National Academies Policy Advisory Group noted in their 1996 review of *The Research Capability of the University System*, there is a real conflict between, on the one hand, the recognition of and the support for collaborative research between institutions and, on the other, the “application of the ... RAE in which universities and their departments compete strongly against each other”.¹⁶¹ Many witnesses to our inquiry agreed. The ABPI told us that, by assigning points to individual departments and individual universities, the RAE does not encourage and “certainly inhibits industry collaborations”.¹⁶² SmithKline Beecham went further, telling us that “there are penalties for collaborative work with other departments, other universities and industry”,¹⁶³ a position supported by the AUT.¹⁶⁴

65. The NCIHE acknowledged the importance of collaboration—“Collaboration matters. It may, in some cases, make the difference between institutional success and failure”¹⁶⁵—in terms of institutional management and overall efficiency but failed to recognise its fundamental importance for research. As the Natural Environment Research Council (NERC) pointed out “many of the most important innovative advances in science occur at the interfaces between disciplines and involve collaborative research”.¹⁶⁶ Moreover, there are numerous examples of successful collaborative research operations which suggest the potential for similar developments elsewhere. For instance “White Rose Research”, a joint initiative between the universities of Leeds, Sheffield and York, secured EPSRC funding to establish a Faraday Centre to conduct research and development in the field of packaging in collaboration with a number of industrial partners; DTI support for a bio-technology consortium; and DfEE support for a collaborative scheme training PhD students. This alliance is also pursuing the possibility of collective equipment procurement, sharing facilities and a joint investment fund for the exploitation of research. **It is, therefore, of the utmost importance that the RAE should reward research undertaken in collaboration at least equally with that done by a single department or institution. We are, therefore, disappointed that the Dearing Report made no specific recommendations about funding for collaborative research and that the consultation exercise launched last November by the HEFCs on the operation of 1996 RAE made no specific reference to collaborative research.**

66. Similar concerns have been raised about the way in which the RAE assesses inter-disciplinary or, perhaps more appropriately, multi-disciplinary research. The NCIHE gave more attention to this area, recognising that such concerns are widespread and that, despite attempts at improvement in the last RAE, there was little confidence that research spanning the boundaries of traditional disciplines had been adequately recognised. Indeed, Professor May of the Royal Academy of Engineering described the problem vividly:

“If I can quote an area ... that of sensors technology, one is talking about technologies

¹⁵⁸*The Dearing Report*, para 11.97.

¹⁵⁹*The Dearing Report*, Recommendation 68, p. 262.

¹⁶⁰Science Policy Research Unit, *The Changing Shape of British Science*, 1995.

¹⁶¹NAPAG, *The Research Capability of the University System*, April 1996, p. 14.

¹⁶²QQ. 144–6.

¹⁶³Ev.p.174

¹⁶⁴Ev.p. 181.

¹⁶⁵*The Dearing Report*, para 16.48.

¹⁶⁶Ev.p. 189.

from perhaps some six or seven different subject areas being applied in perhaps a dozen or more. At the moment the Research Assessment Exercise requires that to be reported separately in chemistry, in physics, in electronics, in computer studies and so on. It is virtually impossible to find a mechanism at the moment for presenting the sum total of that research and having it assessed.”

Such is the importance of HEFC funding to the financial viability of research activities that the prospect, or indeed even a concern, that multi-disciplinary research will not produce the same level of reward from the RAE as single discipline research of the same standard, must discourage multi-disciplinary projects.

67. The Dearing Report suggested that multi-disciplinary research projects were also discriminated against by the way in which the Research Councils allocated their funding.¹⁶⁷ There is less evidence to support this claim and it was hotly disputed by some of the Research Councils, and other witnesses, in their evidence to us. The BBSRC told us that “the Research Councils’ commitment to inter-disciplinary research is not sufficiently acknowledged” in the Dearing Report and NERC said that the majority of research they supported was multi-disciplinary.¹⁶⁸ Multi-disciplinary research, too, is key to research success and innovation, particularly in the sciences. As the Royal Institution told us “it is a truism to say that the most potent sources of novelty in science lie at the interfaces between mature disciplines”.¹⁶⁹ Therefore it is essential that we can be confident that none of the funding mechanisms used to support research discriminates against multi-disciplinary research.

68. The NCIHE’s response to these concerns about the funding of inter-disciplinary and multi-disciplinary research was to recommend that the Funding Bodies and the Research Councils commission an external study (the NCIHE suggest by the Royal Society) to evaluate their funding mechanisms.¹⁷⁰ We are concerned that such a study would not produce any worthwhile results. As the MRC said “A major review of interdisciplinarity would be difficult ... the issues are complex and vary between areas, and perceptions of what constitutes interdisciplinarity vary widely”.¹⁷¹ We believe that it would be more appropriate, and more likely to produce workable results, if the HEFCs and the Research Councils together brought forward proposals for improving their assessments of multi-disciplinary research and then consulted widely, thereby by utilising many different sources of expertise. Moreover, any such exercise should have collaborative research specifically within its remit. **We recommend that the Funding Bodies and the Research Councils review all their funding procedures, including but not exclusively the RAE and peer review, to identify any areas where collaborative, inter-disciplinary and multi-disciplinary research may be disadvantaged and then put forward, and consult widely on, options for change. Results from the current consultation on the RAE should be used to inform, but not replace, parts of that review.**

THE BALANCE BETWEEN TEACHING AND RESEARCH

69. The NCIHE found that

“Although the teaching quality assessments ... carried out by the Funding Bodies, which are designed to measure the effectiveness of teaching, have raised the profile of teaching within institutions, the Research Assessment Exercise ... has been a stronger influence and has deflected attention away from learning and teaching towards research. An analysis of the 1992 RAE in higher education institutions in England suggests that it has devalued teaching because research assessment is closely linked to the allocation of large sums of money, whereas teaching assessment is not. The fact that almost every higher education institution in the country entered the exercise—regardless of whether its primary mission was to research or to teach—indicates the influence of the RAE on

¹⁶⁷*The Dearing Report*, para 11.99.

¹⁶⁸*Ev.pp. 116 and 188. See also ESRC, Response to the Report of the National Committee of Inquiry into Higher Education*, para 24.1.

¹⁶⁹*Ev.p. 217.*

¹⁷⁰*The Dearing Report*, Recommendation 32, p. 186.

¹⁷¹*MRC, Response to the Report of the National Committee of Inquiry into Higher Education*, October 1997, para 3.4.4.

institutions' activities".¹⁷²

Witness after witness agreed. For instance the Institution of Electrical Engineers told us that the RAE had resulted in a "dash for research", distorting university priorities and diminishing teaching.¹⁷³ The Medical Clinical Academic Committee of the BMA explained to us clearly how this had happened when we met them informally: the RAE rewards departments for good research in terms of increased funding but there is no equivalent reward for good teaching. They also told us that it was almost impossible for staff to gain promotion solely on the basis of good teaching. Departments are, therefore, tempted to concentrate more on their research activities, or take up research activities, and consequently to devote fewer resources and less attention to teaching. The HEFCE pointed out that there was also "a tendency for academics ... to value and esteem research more highly than other activities" which reinforced the financial incentives to concentrate on research.¹⁷⁴ The Medical Clinical Academic Committee were also concerned that, in their discipline at least, there was little or no prospect of promotion on the strength of good teaching which, again, might serve to focus attention on research in preference to teaching. In addition, as the NCIHE acknowledged, some departments are entering the RAE with little or no prospect of success, and thus the resources of both the Funding Bodies and the institutions are being wasted.¹⁷⁵ We agree with the NCIHE that "this situation serves neither research, nor teaching well".¹⁷⁶

70. The NCIHE made several recommendations designed to enhance the status of teaching which we are not in a position to comment on as they have not formed part of our inquiry. However, the NCIHE also proposed the creation of a second non-competitive, per capita, funding stream from the Funding Bodies which would be open to those engaged in research in support of teaching who opted out of the RAE.¹⁷⁷ The NCIHE's intention, in proposing such a fund, was to make it attractive for departments who felt their main strength was in teaching to opt out of the RAE but, recognising the importance of research to high quality teaching, still receive funding for "private research and scholarship in support of their teaching".¹⁷⁸ The funding for this stream would, the NCIHE envisaged, be released by not funding any of those departments scoring 1, 2 or 3-b in the RAE. This would provide some £30 million per annum, at current rates, for the per capita fund which the NCIHE proposed should be allocated on the basis of at least £500 per eligible staff member. The per capita funding would not be available to departments entering the RAE except, in order not to discourage departments with a developing strength in research, those scoring a high 3-b.

71. While most witnesses welcomed the emphasis that the NCIHE placed on the need to ensure that teaching quality was not undermined, the mechanism proposed found little favour. Fundamental concerns, which we share, were expressed about the implied distinction between research and scholarship undertaken in support of teaching¹⁷⁹ although other witnesses welcomed it.¹⁸⁰ When we questioned Lord Dearing over his distinction he told us:

"research is committed to finding out things that are not at present known whereas scholarship is concerned with the lecturer being able to keep up with the leading edge of knowledge of his or her subject ... looking at it critically and creatively, but not trying to establish new knowledge. It is the foundation of research but also the foundation of excellence in teaching ... it is a continuum".¹⁸¹

We see scholarship as an integral part of both teaching and research at every level. Moreover, scholarship in the terms that Lord Dearing has defined it—as underpinning high quality

¹⁷²*The Dearing Report*, para 8.09.

¹⁷³Ev.p. 177. See also Q. 259; Ev.pp.14, 200 and 206.

¹⁷⁴Ev.p. 100.

¹⁷⁵*The Dearing Report*, para 11.63.

¹⁷⁶*The Dearing Report*, para 11.63.

¹⁷⁷*The Dearing Report*, para 11.64.

¹⁷⁸*The Dearing Report*, para 11.64.

¹⁷⁹QQ. 45, 83 and 117.

¹⁸⁰Ev.p. 115.

¹⁸¹QQ. 229–233.

teaching—should be regarded as a normal professional requirement for all university teachers, not just those not involved in leading edge research. We do not wish to become heavily involved in a debate over semantics but **we have grave reservations about the principle and practicality of any funding mechanism that relies on a distinction between scholarship and research.**

72. Some witnesses also expressed concerns about the proposed method of operation for the per capita fund itself. The Baroness Blackstone had reservations about withdrawing funding from departments scoring 3-b, that is those achieving a rating of national excellence in a majority of sub-areas, in the RAE: “we also have to remember that the decision to allocate a department into a 3a or a 3b is often a very narrow one and it is often based on quite subjective judgements”.¹⁸² She also pointed out, as did other witnesses, that funding 3-b departments provided support for emerging research talent which would be lost under the NCIHE’s scheme.¹⁸³ SBS argued that “the idea that you can allow a member of teaching staff to be aware of developments in their subject at the highest level for £500 a year, which to a garage represents 10 hours of a mechanic’s time, is a nonsense”.¹⁸⁴ What is perhaps the most convincing argument against the scheme was put by the HEFCW who warned us of a very real, if more insidious, risk: that it could result in a department receiving “scholarship” funding that would have scored 1 in the RAE while another department that scored 3-b would receive no funding at all, thus undermining the concept of rewarding research excellence wherever it is found.¹⁸⁵

73. Witnesses such as NERC and the UK Life Sciences Committee also questioned whether it was appropriate to fund activities which should be an inherent part of teaching from the research budget.¹⁸⁶ We share all these sentiments; as the Baroness Blackstone told us “we should be funding teaching properly in our universities”.¹⁸⁷

74. We strongly endorse the conclusions of the NCIHE that university departments must make strategic assessments of their research activities and that departments whose strengths lie in teaching should not be inhibited from pursuing teaching excellence; but we cannot support its proposals for a per capita fund which are in principle wrong and in practice would be ineffective. The best way to achieve an appropriate balance between teaching and research is to enhance the status of, and reward for, good teaching rather than to undermine the pursuit of research excellence.

RAE CRITERIA

75. Both the BMA and the Royal Academy of Engineering questioned the importance placed in the RAE on publication of research results.¹⁸⁸ The BMA in particular argued that performance measurement by citation frequency led departments to recruit staff whose research was likely to be published in journals with a large readership and therefore was more likely to be cited frequently to the detriment of researchers in more specialised areas where the top journals have small readerships and therefore poor citation indices.¹⁸⁹ This is clearly far from ideal and leads to the question of how else research performance might be measured.

76. The Royal Academy of Engineering among others told us that the RAE should put an emphasis on the usefulness of research results which it does not at present. “If one is thinking about the real beneficiaries of research the emphasis should be put on patents, licences, the setting up of companies, payment back through royalties [and] demonstration of the use of research”.¹⁹⁰ **In an era when much of the justification for deploying public funds in support of the research base rests on the economic and social benefits of research, the RAE should**

¹⁸² Q. 517.

¹⁸³ Q. 517.

¹⁸⁴ Q. 86.

¹⁸⁵ Q. 328.

¹⁸⁶ Ev. pp. 184 and 188.

¹⁸⁷ Q. 522.

¹⁸⁸ Q. 187; Ev. p. 206.

¹⁸⁹ Ev. p. 206.

¹⁹⁰ Q. 187.

make some recognition of research applied in these areas.

77. In the last RAE there were only 12 company representatives on assessment panels out of a total of some 600 panellists. The CBI argued that one way of increasing the recognition of industrially or commercially useful research was to ensure that company representatives were included on every panel.¹⁹¹ The ABPI acknowledged that the inclusion of company representatives in the last the RAE had been “hugely beneficial” but were not in favour of a further increase in their numbers, suggesting instead that the Funding Bodies could achieve the same results by issuing firm guidance to panel chairmen.¹⁹² No doubt there are a number of other methods which could be used to the same effect. **We recommend that the Funding Bodies identify and evaluate the ways in which applied research can be more easily recognised and adequately rewarded and implement changes in the next RAE.**

SHORT-TERMISM

78. Our evidence also points to concerns that the RAE, by its frequency, is promoting short-termism in research strategies. Indeed, the BMA told us that “short-term planning reached new depths with the RAE”.¹⁹³ For example, researchers may feel under pressure to produce results in time for consideration in the next RAE and thus decide to pursue avenues of research that are likely to come to fruition in time. Or there may be an inclination to accept short grant awards from other sources of funding in preference to long-term grants thus making university management and strategic planning more difficult. Such considerations have to be balanced against “the need for funding decisions to be based on valid and reasonably current information ... and that judgements affecting funding are robust and based on recent evidence”.¹⁹⁴ We welcome the fact that this issue has been highlighted in the current consultation on the RAE. However, we do not believe that it is possible to extend the intervals between RAE to such a degree that short-termism would be eradicated and yet would be consistent with the HEFCs needs for recent information. **We urge the HEFCs to consider and implement means by which the tendency of the RAEs to encourage short-termism in research planning can be removed without extending the interval between RAE to a duration inconsistent with robust financial management and accountability.**

ADMINISTRATIVE EFFICIENCY

79. SBS told us that it was important that the RAE be “simplified” and become “less of an administrative burden on time and energy”,¹⁹⁵ a view echoed by others and noted by the HEFCs in their consultation on the RAE.¹⁹⁶ One recent survey put the aggregate cost to the higher education sector of participating in the 1996 RAE at just over £27 million.¹⁹⁷ The NCIHE’s proposal to create a non-competitive funding stream for departments opting out of the RAE was aimed in part at reducing the administrative burden imposed by the RAE on both institutions and the Funding Bodies. We have already rejected this proposal (see paras 69–74). Other mechanisms for allowing departments to opt out of the RAE where their submissions were unlikely to be successful could certainly be developed and, if an alternative non-competitive funding stream were to be introduced for them, would be likely to be more resource efficient. However the CVCP argued that “all research funding must be allocated on a competitive and accountable basis”.¹⁹⁸ We agree. Non-competitive funding would serve to undermine the principle of nurturing and rewarding excellence in favour of supporting research possibly of mediocre standards or doubtful potential. The creation of a second competitive funding stream, whatever its other merits, would not reduce administrative burdens.

80. The HEFC consultation on the RAE raises the possibility of “the replacement of widely

¹⁹¹ Ev.p. 86.

¹⁹² Q. 147.

¹⁹³ Ev.p. 206.

¹⁹⁴ *Research Assessment Consultation*.

¹⁹⁵ Ev.p. 17.

¹⁹⁶ Ev.p. 11.

¹⁹⁷ *Research Assessment Consultation*, para 12.

¹⁹⁸ Ev.p. 41.

spaced exercises covering all subjects at once by a rolling programme covering different subject groups in different years” as a means of reducing the administrative burden on the grounds that universities may find “an occasional major task ... more onerous than a steady stream of work”.¹⁹⁹ As the consultation document notes implementing such a rolling programme would have some awkward consequences “especially in terms of the allocation of resource between subjects from year to year”.²⁰⁰ It would, we believe, also make it more difficult to assess fairly multi-disciplinary research which could fall not only between different assessment panels but also between different assessment years. **We see little benefit and considerable risk in moving to a rolling programme of research assessment, the advantages of which are far from proven.**

81. Another possibility raised by the Funding Bodies in the consultation exercise is that of requiring a deposit from researchers entering the RAE which would only be returned if a certain rating was achieved.²⁰¹ We see some merit in this suggestion which would serve as a disincentive to those departments unlikely to fare well in the exercise but we would be concerned to see it introduced without adequate measures also being implemented to ensure that different types of research across disciplines and across institutions were assessed equally and that the same standards were applied across all assessment panels. Without such measures the imposition of the requirement for deposit would act as a further disincentive to research in these important areas.

STANDARDS ACROSS DISCIPLINES

82. We heard concerns that the RAE did little to ensure that comparable standards of research across different disciplines were rewarded by the same RAE rating. For instance, the Institution of Chemical Engineers told us that “the methodology ... lacks consistency between different units of assessment” and that “there is concern ... that Chemical Engineering Department ratings are lower than those of other engineering disciplines”.²⁰² This has implications for the assessment of multi-disciplinary research and, as SmithKline Beecham pointed out “the issue is important in attempting to prioritise the UK’s research strengths”.²⁰³ At present there are no arrangements within the RAE for the results from different panels to be moderated; however if such a scheme were to be introduced it would be important to ensure that there was no temptation to uprate or downgrade ratings in a response to perceived variations in generosity in markings. We recognise that this is a complex issue and welcome its inclusion in the current consultation exercise.²⁰⁴

INTERNATIONAL MEMBERSHIP ON ASSESSMENT PANELS

83. The Dearing Report argued that “the presence of overseas members [on assessment panels] would reinforce community confidence in RAE panel judgements” and recommended that “in the interests of transparency and applying international standards properly, the practice of including one or more international members in all Research Assessment Exercise ... panels, wherever possible, should be introduced to the next RAE”.²⁰⁵ Most witnesses who commented on this proposal were in favour although Professor John Bridgwater was more sceptical, arguing that “it is surely logical and correct for UK Nationals to be responsible for the distribution of UK money”.²⁰⁶ While we do not object in principle to the inclusion of international representation on assessment panels we do have some practical reservations. Certainly international validation in some cases would lend confidence to the system but we remain to be convinced that it would be appropriate in all cases—“some subjects are practised in a more truly international arena than others”.²⁰⁷ We are also concerned that the attendance of international representatives at panel

¹⁹⁹ *Research Assessment Consultation*, para 25.

²⁰⁰ *Research Assessment Consultation*, para 26.

²⁰¹ *Research Assessment Consultation*, para 30.

²⁰² Ev.pp. 272–4.

²⁰³ Ev.p. 174.

²⁰⁴ *Research Assessment Consultation*, para 4.

²⁰⁵ *The Dearing Report*, Recommendation 33, page 186.

²⁰⁶ eg Ev.pp. 17, 183 and 187–8.

²⁰⁷ *Research Assessment Consultation*, para 58.

meetings could significantly increase the costs associated with the RAE. It may be more appropriate in some instances, as the HEFCs have suggested, to use experts from other countries as external assessors; panels could then, for instance, refer submissions to them before awarding the highest ratings.²⁰⁸ **We endorse the principle of international validation of RAE ratings but cannot support the prescriptive recommendation of the NCIHE that all panels should have international membership. We believe that the Funding Bodies should have discretion in this respect.**

Selectivity

84. The public funds available for research are finite and are unlikely ever to be sufficient to fund all the research that could be conducted in the UK universities. Acceptance of this situation leaves two alternatives: either the funds available are disbursed equally to all those involved in research or some method of selecting which researchers to fund, and to what level, must be used. The RAE is the tool used to select which researchers receive HEFC funding and consequently it is difficult to divorce discussion of the RAE from the wider issue of selectivity in research funding.

85. The widespread acceptance that a degree of selectivity is necessary in the allocation of funding was reflected in the evidence we received. As the Baroness Blackstone told us “it is very important that we sustain good quality research in a substantial proportion of our universities. At the same time it would be foolish to spread what money we have around equally; that would be a nonsense”.²⁰⁹ Others agreed. The level of selectivity to be employed is more controversial. It is important to strike a balance that will, on the one hand, support research of world-class quality sufficiently to sustain international competitiveness and, on the other, support those researchers who have potential to reach the highest levels but have not done so yet and research in new or emerging areas. As the Baroness said “it is right to be selective but wrong to be over selective”.²¹⁰

86. Concentrating funding in departments achieving a high rating in the RAE has been a feature of the system since the RAE was established in 1986 but the level of selectivity has increased, particularly since the removal of the distinction between universities and polytechnics in 1992.²¹¹ Previously the HEFCE had provided QR money to all departments scoring 2 or more but following the 1996 RAE has only allocated QR money to departments scoring more than 2. The proportion of HEFCE funds devoted to QR money have also increased from 40% in the first RAE to 97% in the latest exercise. In the 1997–98 allocation 20% of higher education institutions receive 76% of all funds. Table 4 shows the concentration of the HEFCE’s QR funding by 1996 RAE ratings for 1997–98.

Table 4

HEFCE’s QR Funding by 1996 RAE ratings for 1997-98						
RAE Rating	1 or 2	3b	3a	4	5	5*
Proportion of QR money allocated	0%	4%	11%	27%	33%	25%
Proportion of Research Active Staff	13%	11%	17%	26%	21%	13%

Source: Office of Science and Technology

Note: Percentages may not total because of rounding

87. If, for instance, the HEFCE raised their funding threshold from the present 3-b RAE

²⁰⁸ *Research Assessment Consultation*, para 59.

²⁰⁹ Q. 517.

²¹⁰ Q. 517.

²¹¹ *Striking a Balance*, p. 17.

qualifying rate to 3-a, as suggested in the Dearing Report (see para 70), some 4,000 researchers who presently receive funding would not do so and around £30 million would be released. If the threshold were raised to 4, 41% of staff entered in the 1996 RAE would not be eligible for funding, compared to the present 13% who are ineligible, and some £70 million would be released.²¹²

88. Some witnesses argued that the RAE should be more selective in its funding allocations. The CBI advocate the removal of funding from researchers scoring below 4 as they believe that funding is currently “spread too thinly, there is a lack of focus and the money ought to go to ... departments and groups ... of real excellence”.²¹³ The AUT on the other hand argued that there was no room for greater selectivity and that “we are rapidly losing the flexibility to encourage talent wherever it is found”.²¹⁴ The majority, however, felt that “the current balance is about right” but that any further selectivity in favour of high ranking researchers would significantly reduce the volume of blue skies research that could be undertaken and jeopardise the UK’s competitiveness in the long term.²¹⁵ The University of Plymouth pointed out that increased selectivity would have particularly harsh consequences for those researchers working in non-research intensive universities: “much research of national and international importance in areas such as social work, nursing, art and design ... is undertaken in universities that would not be classed as leading research universities. These, and other, subject areas would be seriously disadvantaged by a further narrowing of the institutional funding base”.²¹⁶ **On balance we have concluded that the current level of selectivity is broadly acceptable and that, given the importance of fostering new talent and pursuing blue skies research, any moves towards greater selectivity would be unwise.**

²¹²Ev.p. 30.

²¹³Q. 248; Ev.p. 86.

²¹⁴Ev.p. 180.

²¹⁵Q. 181. *See also* QQ.72 and 517.

²¹⁶Ev.p. 219.

CHAPTER FIVE: POST-GRADUATE COURSES AND RESEARCHERS' CAREER STRUCTURES

TRAINING FUTURE RESEARCHERS

89. The NCIHE adopted the premise that “creating an environment in which researchers can be encouraged and given a high level of training” was one of the four major reasons justifying public funding and support for research in higher education institutions.²¹⁷ Indeed, the DfEE told us that “training very highly qualified people who will in future staff not only universities but also research departments and institutes outside higher education” was of equal importance to university’s key role in producing and disseminating new knowledge and understanding.²¹⁸ The CBI, among others, stressed the importance of producing able researchers with a wide range of skills for recruitment into industry.²¹⁹ We agree.

90. The Dearing Report, while recognising that “at its best, research training in the UK rivals any in the world”, drew attention to the fact that post-graduate research students did not always complete their courses equipped with the broad spectrum of skills necessary for their future careers.²²⁰ As SmithKline Beecham told us “the standard of PhD training cannot be assumed to be uniformly high”.²²¹ Indeed they, and the ABPI, argued that the problem needed urgent attention.²²² In response to similar concerns the NCIHE, effectively endorsing the recommendations of the 1996 Harris Report on post-graduate education,²²³ recommended that universities should over the next two years “review their post-graduate training to ensure that they include ... training in appropriate technical skills, the development of professional skills such as communication, self-management and planning”²²⁴ and proposed that a code of practice should be implemented which would then be overseen by the Quality Assurance Agency (QAA).²²⁵ Individual institutions could then either adopt the national code of practice or develop their own based on the same objectives as the QAA’s code. The NCIHE envisaged that HEFC funding for post-graduate research students would become conditional on compliance with the code of practice. Most witnesses to our inquiry supported the NCIHE’s recommendation in principle, as do we.²²⁶ However, like the ABPI, we would not want to see research students devoting time which would be better used doing research and developing research skills to acquiring basic skills that should have been provided at an earlier stage in the education process. **We endorse the recommendation of the NCIHE that a code of practice on training for post-graduate research students, monitored by the QAA, should be introduced as soon as possible and that HEFC funding for new post-graduate studentships should be dependant on compliance with that code of practice from 2000-2001 onwards.**

91. The Harris Report argued that the HEFCs should only fund post-graduate research training in university departments that had “a pervasive research culture”—in effect those scoring highly in the RAE.²²⁷ The NCIHE, on the other hand, pointing out that the RAE was only one measure of quality, said that “we would wish to see Funding Bodies taking a wider view of the elements of a high-quality training environment for post graduate research students”.²²⁸ Reservations were expressed by witnesses in regard to both approaches. The Wellcome Trust told us that their experience proved that the best research training was provided where the quality of research was highest whereas the ESRC argued that other factors had to be taken into account and therefore

²¹⁷ *The Dearing Report*, para 11.2.

²¹⁸ *Ev.* p. 155.

²¹⁹ *Q.* 290.

²²⁰ *The Dearing Report*, para 11.83.

²²¹ *Ev.* p. 174.

²²² *Ev.* pp. 51–2.

²²³ HEFCE, CVCP and the Standing Conference of Principals, *Review of Postgraduate Education*, (the Harris Report), May 1996, para. 1.14.

²²⁴ *The Dearing Report*, Recommendation 31, p. 182.

²²⁵ *The Dearing Report*, para 10.71.

²²⁶ *eg Ev.* p. 193.

²²⁷ *The Harris Report*, para 1.16.

²²⁸ *The Dearing Report*, para 11.87.

that a direct relationship with the RAE would be inappropriate.²²⁹ **We find, on balance, that we agree with the Dearing Report: while exposure to high-quality research and research practice is obviously an essential part of research training we agree that other factors, such as teaching quality, should also play a part in determining where to direct funding for post-graduate research training.**

92. The purpose of the proposed code of practice is to ensure that post-graduate students acquire the broad range of skills necessary to equip them for careers either in academia or industry. It is therefore important, as for instance SmithKline Beecham argued, that the needs of both sectors are taken into account in drawing up the code of practice.²³⁰ **We recommend that the QAA, where appropriate, involve industrial representatives in the drawing up of a code of practice on post-graduate training.**

CAREER STRUCTURES FOR RESEARCHERS

93. The Dearing Report also drew attention to the increasing number of researchers employed on short-term contracts.²³¹ The use of short-term contracts has some advantages for the funders of research: it gives research funders “a substantial degree of flexibility, ... research can adapt more rapidly as fields and priorities change. The system also means that “unsuccessful research does not waste more money”, and allows the employer or funder of research freedom to commission that research from the best team”.²³² The EPSRC told us that short-term contracts were used for three purposes: firstly as an additional pair of hands to get the research done; secondly, as a stepping stone for researchers into academia; and thirdly as a means of technology transfer—“taking people, schooling them in a particular area, developing research leadership skills and then taking them out into industry or commerce”.²³³

94. We agree that short-term contracts have a place in the employment of researchers. The problem arises when short-term contracts are used not for the benefit of the post-holder or because of the nature of the research requirements of the research funder but because of the host institutions’ inability to guarantee long-term funding for posts.²³⁴ As the Wellcome Trust told us over dependence on short-term contracts provides a very insecure career for researchers and the AMRC, among others, pointed out that this could have a detrimental effect on morale and make it difficult to attract the brightest and most able into research careers, both of which could undermine the quality of research.²³⁵

95. A concordat has now been agreed between higher education institutions, the Research Councils, research charities and the Royal Society to provide “a framework for the career management of contract staff, which sets standards for conditions of employment of researchers employed ... on fixed term or similar contracts”.²³⁶ The NCIHE welcomed the concordat as did many of our witnesses.²³⁷ Certainly it has the potential to secure real improvements in the terms and conditions of those on short-term contracts but, nevertheless, it does not address the primary factor behind the growing use of such contracts. Some witnesses regretted that the NCIHE did not pay more attention to this aspect.²³⁸ So do we. Attracting the brightest and most talented into research and exploiting their talents to the full is key to maximising the benefits the UK receives from the research base. We have already made recommendations regarding the funding of research. **Ensuring adequate funding for the research base in the long term is the only way to reverse the increase in short-term appointments. If implemented, our recommendations will enable institutions to make commitments to long-term funding for**

²²⁹Q. 469; ESRC, *Response to the Report of the National Committee of Inquiry into Higher Education*, para 21.2

²³⁰Ev.pp. 174–5.

²³¹*The Dearing Report*, para 11.93.

²³²Fourth Report from the House of Lords Select Committee on Science and Technology, Session 1994–5, *Academic Research Careers for Graduate Scientists*, para 4.2.

²³³Q. 386.

²³⁴*The Dearing Report*, para 11.93.

²³⁵Q. 469. See also Q. 386.

²³⁶*The Dearing Report*, para 11.94.

²³⁷*The Dearing Report*, para 11.94. Eg Q. 293; Ev.p. 174.

²³⁸eg Ev.pp. 181 and 212.

posts and therefore to reduce the proportion of their staff on short-term contracts. We would urge them to do so.

CHAPTER SIX: RESEARCH POLICY ISSUES

ARTS AND HUMANITIES RESEARCH COUNCIL

96. There is at present no Research Council covering research either in the arts or the humanities. Public funding for the research in the humanities outside that delivered through the HEFC block grant is channelled through the Humanities Research Board of the British Academy. In 1997-98 the Humanities Research Board received £20.75 million grant-in-aid to disburse in support of post-graduate awards and research.²³⁹ The situation in regard to funding the arts and arts design is more complicated, as NCIHE found, but what little public funding there has been, has been the responsibility of the Arts Council.²⁴⁰

97. The NCIHE felt that researchers in the arts and humanities were put at a disadvantage as “they not do have direct involvement in high level discussions about research funding and policy”²⁴¹ and consequently recommended that the Government should establish a new Arts and Humanities Research Council as soon as possible.²⁴² None of our witnesses argued against this proposal and, indeed, the majority welcomed it.²⁴³ **While we do not consider that it is for us, as the Science and Technology Committee, to comment in detail on the precise arrangements for public support of research in the arts and humanities, we endorse, in principle, the establishment of an Arts and Humanities Research Council and welcome the Government’s commitment to consider this in the context of the Comprehensive Spending Review.**²⁴⁴

98. There is, however, one aspect on which we feel obliged to comment. It has been suggested that any Arts and Humanities Research Council should be created “as part of the Office of Science and Technology”.²⁴⁵ The position of the proposed council within Government was the subject of much debate among our witnesses. The Baroness Blackstone told us that she did not believe that it would be appropriate for it to be placed within the DfEE: “it should not be in the DfEE. It should not be in a Department which does not fund universities directly”.²⁴⁶ She also added that it would look “rather odd to have a research council in the arts and humanities in an Office of Science and Technology; certainly people from abroad would find it bizarre”.²⁴⁷ Not only people from abroad—we too find the suggestion bizarre. Quite apart from issues such as funding and the essential ring-fencing of the Science Budget within the OST, the fact that the OST is headed by the Chief Scientific Adviser to Government, and the implications the inclusion of an Arts and Humanities Research Council would have for the position of the Director General of the Research Councils, we would be concerned, as the Minister for Science told us he would be, that a such a move would be inconsistent with the emphasis in Government policy which we wish to see placed on science, engineering and technology.²⁴⁸ **We strongly recommend that the Government should reject any proposals that the Arts and Humanities Research Council should be placed within the structure of the OST.**

INDUSTRIAL PARTNERSHIP DEVELOPMENT FUND

99. There is at present a wide range of Government schemes designed to promote collaboration between industry and the research base, for instance, LINK, the TCS, Co-operative Awards in Science and Engineering, Realising our Potential Awards, SMART and Faraday Partnerships. Many of these schemes attract significant contributions from industry. The

²³⁹Ev.p. 212.

²⁴⁰*The Dearing Report*, para 11.47-48.

²⁴¹*The Dearing Report*, para 11.45.

²⁴²*The Dearing Report*, recommendation 29, p. 176.

²⁴³Eg QQ. 107, 315 and 385; Ev.p. 141.

²⁴⁴Department for Education and Employment, *Higher Education for the 21st Century: Response to the Dearing Report*, February 1998, p. 32.

²⁴⁵*The Dearing Report*, para 11.50.

²⁴⁶Q. 528.

²⁴⁷Q. 528.

²⁴⁸Q. 560.

NCIHE were however concerned, as were a number of our witnesses, that such a large range of separate schemes was confusing.²⁴⁹ Furthermore, the NCIHE felt that “against a background ... in which it is Government policy to encourage all industry, especially small and medium sized enterprises, ... it is appropriate to have a funding stream that actively promotes collaboration between higher education and industry and commerce”.²⁵⁰

100. The NCIHE’s response to these two factors was to propose the creation of an Industrial Partnership Development Fund (IPDF) which would act as a single vehicle to deliver the plethora of existing schemes and in-doing so create an additional funding stream to support applied research initiatives in partnership with industry. The IPDF would support successful applications for research projects from industrial/academic collaborators on a 50:50 basis, the IPDF meeting the costs of the university.²⁵¹ The scheme would be funded from the resources, currently about £50 million a year, devoted to other initiatives, although the NCIHE envisaged that some initiatives would retain their identity within the IPDF. The NCIHE recommended that, in the long run, Government funding for the IPDF should rise to about £100 million per annum. It also suggested that the Fund could be administered, at least in part, on a local or regional basis.²⁵²

101. The NCIHE’s call for greater clarity in Government initiatives designed to promote research collaboration between academia and industry was widely welcomed by our witnesses but many questioned whether the IPDF was the correct way to address the problem. The ABPI and SmithKline Beecham, for example, were concerned that one overarching body could become monolithic in its approach and that the flexibility to be able to tailor specific programmes to specific needs would be lost.²⁵³ NERC and the EPSRC had reservations over how the IPDF would relate to their own schemes to promote collaboration and the effect that rolling them, with their funding, into the IPDF would have on Research Councils’ ability to pursue their missions of promoting industrial collaboration.²⁵⁴ Other witnesses did see some merit in a scheme which would promote universities’ roles as regional centres of research expertise to be drawn upon by local industry. The AUT, for instance, told us that “one of the prime functions of an IPDF should be the active promotion of local and regional partnerships”.²⁵⁵ SBS argued that the fund could, in particular, help to develop links between university researchers and small businesses. We accept that there is scope for such developments but are unconvinced that the IPDF proposed by the NCIHE is the right vehicle. The HEFCW, for instance, told us that, while they would support the administration of the IPDF on a regional basis, it might be more appropriate for them to take the responsibility themselves.²⁵⁶ **We, like the majority of our witnesses, are unable to see any significant benefits in an IPDF above and beyond those already delivered by existing schemes.**

102. Nevertheless, we accept the need for clarification in the existing schemes run by Government. The CBI, among others, suggested that this could be achieved by using the already strong identity of the LINK scheme to consolidate a number of schemes under one banner.²⁵⁷ Indeed, the Government has already been doing this to some degree. **We recommend that the Government investigate whether greater use could be made of the LINK scheme to reduce confusion caused by the large number of Government initiatives designed to promote research collaboration between industry and academia.**

103. We, like the NCIHE, were made aware of significant private sector concerns over the way in which some schemes designed to attract industrial investment in research in higher education had been introduced without consultation. The ABPI made the point clearly when they told us “whatever the mechanism, whatever the forms of partnership, we feel we do have

²⁴⁹Q. 287; Ev.pp. 65 and 187.

²⁵⁰*The Dearing Report*, para 11.72.

²⁵¹*The Dearing Report*, para 11.74.

²⁵²*The Dearing Report*, para 11.75.

²⁵³Q. 127; Ev.p. 176. See also eg Ev.pp. 31 and 192.

²⁵⁴Ev.pp. 121 and 189.

²⁵⁵Ev.p. 181.

²⁵⁶Ev.p. 105.

²⁵⁷Ev.p. 87.

something to say and if being asked to provide new money would like to have the opportunity to influence the debate to begin with”²⁵⁸ **It seems obvious to us, if companies are to be asked to enter into a partnership or a collaboration, that they should be consulted on the basis of that partnership and therefore strongly endorse the NCIHE’s suggestion that “in future, Government departments should consult with industry before introducing shared cost schemes”.**²⁵⁹

104. The NCIHE argued for an extra £50 million of Government funding for the IPDF in the long term. While we welcome the Government’s commitment to continue to encourage the participation by industry in higher education, we do not consider this to be a priority area for additional public investment. As the Government noted in its response to the Dearing Report, “higher education institutions have a good record in developing research links with industry”.²⁶⁰ Rather the Government must seek to fund current research activities adequately before considering additional funding for additional research.

INFORMATION TECHNOLOGY SERVICES FOR RESEARCHERS

105. The NCIHE rightly drew a distinction between the two uses made of information technology (IT) by researchers in higher education.²⁶¹ Firstly, IT is used as a research tool by, for instance, analysing data and information or modelling virtual and remote environments. The equipment used in this manner is an integral part of the research equipment needed for particular projects or in particular subject areas and therefore should be funded in the same manner as other research equipment. The second use of IT is as a means of access to on-line information and communication between researchers. Funding for such services has been provided, in part, through initiatives on the part of the HEFCs’ Joint Information Systems Committee. As the NCIHE pointed out “funding for such services is significant but finite, and other means of funding them will have to be found if they are to continue”.²⁶²

106. It is widely accepted that the continued provision of such services is essential.²⁶³ The NCIHE’s recommendation that the Joint Information Systems Committee should continue to manage and fund IT services on a permanent basis and that it should charge institutions for their use of the networks on volume of usage basis was widely supported in our evidence.²⁶⁴ Charging institutions would generate revenue for continuous investment in the networks and should not strain institutions unduly if our recommendations on funding are implemented. Moreover, charging would be more likely to lead to the provision of a system that meets the needs of the users and to encourage disciplined and responsible usage. **We endorse the NCIHE’s recommendation that the Joint Information Systems Committee should permanently fund and manage electronic communications and information services for researchers and should introduce charges for those services based on volume of usage.**

107. Some witnesses drew particular attention to strains put on the academic network (SUPERJanet) by the ever increasing volume of traffic it handles and its relative lack of bandwidth.²⁶⁵ It was felt that this was a particular problem in relation to international communications.²⁶⁶ The NCIHE, alive to such concerns, recommended that the Joint Information Systems Committee report on the options to provide protected international bandwidth to support UK research.²⁶⁷ **We understand that the Funding Bodies have already asked for costed options to be produced. We welcome this.**

²⁵⁸Q. 128.

²⁵⁹*The Dearing Report*, para 11.71.

²⁶⁰Department for Education and Employment, *Higher Education for the 21st Century: Response to the Dearing Report*, February 1998, p. 30.

²⁶¹*The Dearing Report*, para 11.41.

²⁶²*The Dearing Report*, para 11.42.

²⁶³Eg Ev. pp. 17 and 189.

²⁶⁴*The Dearing Report*, Recommendation 27, p. 173.

²⁶⁵eg. Q. 89.

²⁶⁶eg. Q. 184.

²⁶⁷*The Dearing Report*, Recommendation 28, p. 174.

ADVISORY COUNCIL ON NATIONAL RESEARCH POLICY

108. The NCIHE's final recommendation relating to research, made with some hesitation, was that an Advisory Council on National Research Policy should be created to take an "objective overview" of the arrangements for research funding in higher education, to identify inconsistencies in the policies of different public bodies and to report on their performance.²⁶⁸ The NCIHE accepted that this recommendation was made without a full understanding of the roles of the Council for Science and Technology (CST) or the Science and Engineering Base Co-ordinating Committee (SEBCC).²⁶⁹

109. It is important to understand the roles of existing mechanisms for co-ordinating research policy before considering whether further mechanisms are needed and therefore we set out the terms of reference for the two groups with the NCIHE referred to. The terms of reference of the CST were "to advise the Government on science, engineering and technology (SET) issues, the balance and direction of Government-funded SET, taking account of international developments; and of the annual Forward Look of Government-funded SET, drawing as appropriate on the findings of the Technology Foresight Panel".²⁷⁰ It is chaired by the President of the Board of Trade and membership includes the Government's Chief Scientific Adviser and senior figures from industry and the research community. The terms of reference of the SEBCC are "to consider trans-departmental issues affecting the science and engineering base, referring, as necessary, to Ministerial and official committees on science and technology".²⁷¹ It is chaired by the Chief Scientific Adviser and members comprise the Director General of the Research Councils, the chief executives of the Research Councils and the Funding Councils and senior officials from the four education departments.

110. Many witnesses accepted that they knew little about the CST. This situation was exemplified by the chief executives of the BBSRC, the MRC and the EPSRC who all agreed that they did not know the membership of the CST and, indeed, asserted that the membership was not publicly known.²⁷² We find this surprising as the membership of the CST is publicly available. There were also numerous calls for industrial representation on any body advising ministers on research policy. Again, we believe that such calls are based on ignorance of the current mechanisms—the CST has always included a number of senior industrial representatives. Nevertheless it is clear that the role and work of the CST, to date has not been widely understood within the research community, and that there has been little confidence in its effectiveness, which we consider to be lamentable. Part of this lack of clarity may result from the decision taken in 1993, when the CST was established, that it should operate in a paper-less mode. As the OST explained "there was a perception that the predecessor body, ACOST, published lots of reports with lots of recommendations addressed to the Government which had sat on shelves gathering dust" and therefore that the CST might be more effective if it delivered its advice in private.²⁷³ This does not seem to have been borne out in practice. As a result of these concerns, the Government have already announced the re-establishment of the CST with wider terms of reference, increased independent representation and commitments on behalf of the CST to publish an annual report and information on its work and to make the advice it delivers public. We welcome these developments. **We recommend that the enhanced role, extended membership and advice of the CST is disseminated widely so that its work carries the confidence of the wider research community.**

111. Many of our witnesses were unconvinced of the need for a further body. The BMA, for instance, told us that "at best it may be seen as a poor attempt to divert the use of funds to 'best effect'. At worst it would merely add to the number of bureaucratic funding strategies in place",²⁷⁴ although many of the counter arguments witnesses presented were based on the fact

²⁶⁸ *The Dearing Report*, paras 11.106–107.

²⁶⁹ *The Dearing Report*, para 11.105.

²⁷⁰ Ev. p. 2.

²⁷¹ Ev. p. 2.

²⁷² Ev. pp. 174 and 195; QQ. 344–350.

²⁷³ Q. 8. The Advisory Council on Science and Technology (ACOST) was abolished in 1993 when the Council for Science and Technology was established.

²⁷⁴ Ev. p. 206.

that they believed the CST and SEBCC already performed the role which NCIHE outlined for the advisory council.²⁷⁵ We are not convinced that the roles of the CST and the SEBCC are directly relevant to the NCIHE's proposal for an advisory council on national research policy. The NCIHE envisaged a group covering the whole of the research base—not just science, engineering, and technology—in higher education rather than spanning all the sectors involved in research as the CST and the SEBCC do. **Nevertheless we, like many of our witnesses, are unconvinced of the need for an advisory council for national research policy as envisaged in the Dearing Report.**

112. Any decision on whether to create new a body or not should be based on a thorough and rigorous analysis of the mechanisms that are already in place to oversee the research base and deliver advice. We would prefer to see those mechanisms that already exist working effectively and carrying the confidence of the research community rather than the creation of another body which could replicate the failings of existing ones. Only when this has been achieved will it be possible to identify those areas where further co-ordination, direction or monitoring are needed. **We recommend that the Government, before considering the need for an advisory council on national research policy as envisaged in the Dearing Report, conduct a rigorous analysis of the mechanisms that are already in place and ensure that they are working properly.**

²⁷⁵ eg Ev.p. 118.

CHAPTER SEVEN: CONCLUSION

113. We broadly concur with the NCIHE's analysis of the problems in university research but we cannot support the majority of its recommendations. We do not think that the solutions proposed by the NCIHE would resolve the current crisis nor guarantee the long-term future of the research base, both objectives which must be met if the nation is to prosper in the next century.

114. We strongly endorse the NCIHE's recommendation that the dual support system should be maintained. The system has undoubtedly been under strain in recent years but it would be foolish to mistake the consequences of inadequate funds for fundamental flaws in the mechanism which allocates those funds. Nevertheless, there are improvements which could be made and we have recommended accordingly, notably in relation to the RAE. Implementation of our recommendations in this area would serve to ensure that excellent research is supported wherever it is found and that there is sufficient scope for blue skies research.

115. The NCIHE concluded that "the funds available to support research are barely adequate".²⁷⁶ It is our view that they are wholly inadequate and that without substantial and sustained additional public investment the Government will be putting the nation's future prosperity and quality of life at risk. We know that, in sum, our recommendations entail a substantial increase in public expenditure: we make them without any embarrassment. There is an overwhelming case for a substantial real terms increase in Government expenditure on research as an investment in the nation's future.

116. The substantial public funds invested in the university research base put an obligation on institutions to deploy those funds effectively and account for them properly. Universities must understand the consequences of undertaking research that is not fully funded. This requires an understanding of the true costs of research. Only then will all universities be able to take strategic decisions about the division of activities between research and teaching in an informed and productive manner. Similarly, all research funders must ensure that they provide properly for the costs of the research they fund. Our recommendations in favour of increased Government investment in research would resolve the current crisis but the only sustainable way to maintain the research base to an adequate level is for all research funders to make a fair contribution by paying all the indirect costs of the research they fund.

²⁷⁶*The Dearing Report*, para 11.12.

Annex**Ratings used in the 1996 Research Assessment Exercise:**

- 1 National excellence in none, or virtual none, of the sub-area of activity
- 2 National excellence in up to half of the sub-areas of activity
- 3-b National excellence in the majority of sub-areas of activity
- 3-a National excellence in a substantial majority of sub-areas of activity, or to international level in some and to national level in other together comprising the majority
- 4 National excellence in virtually all sub-areas of activity, possibly showing some evidence of international excellence, or to international level in some and at least national level in a majority
- 5 International excellence in some sub-areas of activity and to attainable levels of national excellence in virtually all others
- 5* International excellence in a majority of sub-areas of activity and attainable levels of national excellence in all others.

GLOSSARY

ABPI	Association of the British Pharmaceutical Industry
ACOST	Advisory Council on Science and Technology
AMRC	Association of Medical Research Charities
AUT	Association of University Teachers
BBSRC	Biotechnology and Biological Sciences Research Council
CBI	Confederation of British Industry
CVCP	Committee of Vice-Chancellors and Principals
CST	Council for Science and Technology
DENI	Department for Education Northern Ireland
DfEE	Department for Education and Employment
DTI	Department of Trade and Industry
EPSRC	Engineering and Physical Sciences Research Council
EU	European Union
GR money	Generic Research money (research funds from the HEFCs allocated on the basis of collaborations with the users of research)
HEFCE	Higher Education Funding Council for England
HEFCW	Higher Education Funding Council for Wales
IPDF	Industrial Partnership Development Fund
IT	Information Technology
JREI	Joint Research Equipment Initiative
MRC	Medical Research Council
NCIHE	National Committee of Inquiry into Higher Education
NERC	Natural Environment Research Council
OST	Office of Science and Technology
PREST	Policy Research in Engineering, Science and Technology
PSBR	Public Sector Borrowing Requirement
QAA	Quality Assurance Agency
QR money	Quality Research money (research funds from the HEFCs allocated on the basis of RAE results)
R money	Research money (the research component of universities' block grant from the HEFCs)

RAE	Research Assessment Exercise
RPI	Retail Price Index
SBS	Save British Science
SEBCC	Science and Engineering Base Co-ordinating Committee
SET	Science, Engineering and Technology
SHEFC	Scottish Higher Education Funding Council
SPRU	Science Policy Research Unit
T money	Teaching money (the teaching component of universities' block grant from the HEFCs)
TCS	Teaching Company Scheme

PROCEEDINGS OF THE COMMITTEE RELATING TO THE REPORT

WEDNESDAY 25 MARCH 1998

Members present:

Dr Michael Clark, in the Chair

Mr David Atkinson
Mr Nigel Beard
Mrs Claire Curtis Thomas
Dr Ian Gibson
Dr Lynne Jones

Mr Nigel Jones
Dr Ashok Kumar
Mrs Caroline Spelman
Dr Desmond Turner

The Committee deliberated.

Draft Report (The Implications of the Dearing Report for the Structure and Funding of University Research), proposed by the Chairman, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 and 2 read and agreed to.
Paragraph 3 read, amended and agreed to.
Paragraphs 4 to 10 read and agreed to.
Paragraph 11 read, amended and agreed to.
Paragraphs 12 to 108 read and agreed to.
Paragraphs 109 and 110 read, amended and agreed to.
Paragraphs 110 to 116 read and agreed to.
Annexes read and agreed to.

Resolved, That the Report be the First Report of the Committee to the House.

Ordered, That the Chairman do make the Report to the House.

Ordered, That the provisions of Standing Order No. 134 (Select committees (reports)) be applied to the Report.

Several Papers were ordered to be appended to the Minutes of Evidence.

Ordered, That the Appendices to the Minutes of Evidence be reported to the House.

Several Memoranda were reported to the House.

The Committee deliberated.

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21. The Royal Society

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